Industrial FINISHING

ECHNOLOGY DEPT

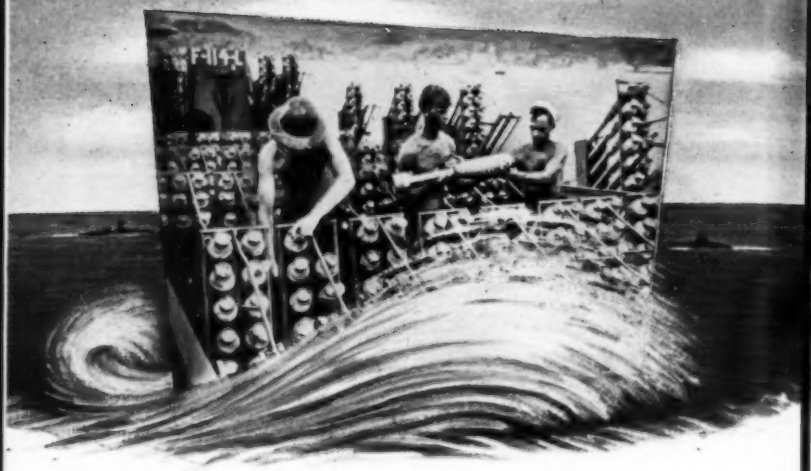
Since 1870

Serving Industry for 75 Years

STANDARD VARNISH WORKS
Engineers of Product Finishes
NEW YORK · CHICAGO

MANUFACTURERS OF ALL TYPES OF PROTECTIVE AND INSULATING COATINGS

SPEEDS ROCKET PRODUCTION!



ROXALIN-ENGINEERED ENAMEL BETTERS NAVAL SPECIFICATION (OS 1590) DRYING TIME BY 60%

This enamel meets every Naval requirement for corrosion and abrasion resistance yet air drys to handle in 4 to 6 minutes—*nine minutes faster than the official specifications for* Type I*. This special characteristic makes it possible, in most cases, to continue the use of conveyerized equipment originally designed for lacquer-type finishes.

Not only rocket manufacturers, but hundreds of other industrial firms have turned to Roxalin for a finish that would give their product the utmost in protection. Roxalin's technical staff is available to help you lick your finishing problems. You can get in touch with them by writing to Department 851.

ROXALIN *Flexible* FINISHES
INCORPORATED
ELIZABETH, N. J. • NEW JERSEY

(*Type 2 for use with baking process also available)

PIONEERS IN PRODUCT FINISHES ENGINEERED FOR SPECIFIC PERFORMANCE

ENTHONE

ARE YOU TAKING ADVANTAGE OF THESE

METAL FINISHING SPECIALTIES?

ACID ADDITION AGENT

A liquid, surface active material for acid pickles to stop fuming, lower surface tension, displace oil films, promote smoother and better pickling of steel.

ENAMEL STRIPPER

Emulsion type strippers for stripping enamels from all metals without attack. Very fast acting. Two types—Enamel Stripper Regular—an emulsion type, and Stripper "F" which forms a clear dispersion with water and which is particularly good for stripping urea-formaldehyde type enamels. Alkaline strippers also available. (U. S. Patent 2,242,106)

ZINC STRIPPER

An alkaline process for very rapid stripping of zinc plating from steel without any attack on the steel. Process uses no current and is a simple immersion procedure. Zinc 0.001" thick stripped in a few seconds. Patent Pending.

COMPOUND NR-37

A new organic rust inhibiting compound which when added to water prevents rusting. It stops rusting of steel immersed in water, and it is ideal to prevent rusting by water rinses after pickling. It stays in the water film until all the water is evaporated. No residue is left. Work with crevices and pockets can be dried free of rust using NR-37.

Free! Informative literature on Stripping, Pickling and Rust Prevention on Request.

ENTHONE

METAL FINISHING SPECIALTIES

MACHINE OVER HAND

FOR A FASTER, MORE UNIFORM FINISH!

The Modern Method!

The Tedious Hand Method!

Again man's ingenuity harnesses nature and her elements to "work for him". Formerly only slow, tedious hand sanding was known... now it can be eliminated with the speedy, efficient Sterling 1000 Portable Electric Sander.

This high quality tool is now being used for hundreds of different sanding applications on wood, metal and composition in practically every industry. Sands faster, more uniformly, more economically. Sands (coarse or fine), laps, polishes. Vibrationless, light-weight, simple to operate.

Ask for a demonstration from your local distributor or write: STERLING TOOL PRODUCTS COMPANY, 365 E. OHIO STREET, CHICAGO 11, ILLINOIS.

STERLING 1000

PORTABLE ELECTRIC SANDER

TWENTY-FIRST YEAR OF PUBLICATION

Industrial FINISHING

W. H. ROHR, Editor E. A. DOSCH, Assoc. Editor

Vol. XXI, No. 10 AUGUST, 1945 $2.00 a Year

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Letters from Readers

Can Supply Masking Material

In the July 1945 issue of INDUSTRIAL FINISHING, page 8, under "Masking Material", there is an inquiry by C. S. Mfg. Co. It is possible that our Plastopak A-20, a peel-coating, would be exactly what this company requires. We would be very glad to work with the C. S. Mfg. Co. on their problem, if you would be so kind as to inform them of our product.—Standard Varnish Works.

Coating Before Stamping

Can you kindly suggest sources of information regarding coatings and application thereof to metal, in advance of stamping and drawing?—T. I. CORP.

Electrocoating of Flock

On page 128 of July 1945 issue, there is an inquiry, "Who Does Flock Coating?" The Behr-Manning Corp., Troy, N. Y., has had issued or assigned to it basic patents covering flock coating by the Electrostatic Process. This process is called "Electrocoating", and several concerns have been licensed to use "Electrocoating" by Behr-Manning.

We would appreciate your giving us the name and address of your correspondent, signed N. Co. Upon receipt of this information we will get in touch with him to submit samples of work done by Electrocoating, and refer him to one of our licensees.—BEHR-MANNING, ELECTROCOATING DIV'N.

Solvent Skin Trouble

I have read with interest the article in July issue of INDUSTRIAL FINISHING, regarding skin trouble caused from different solvents. We have had this trouble for many years. We have discontinued the use of naphtha and are using various substitutes, without any better results. We have used different kinds of oil in our washing-up material but our main trouble is with the workers at dip tanks where we dip fillers and first coats.

It seems more prevalent among the women workers. We have tried all the different protective creams, but without results. Our experience shows that some workers are immune, while others have to be taken off the job. For instance, we have one man who has been on the filler tank for 25 years; he doesn't seem to be affected by naptha or other solvents. We have tried rubber gloves but they don't last. I would like to hear of the experience of other finishers along this line.—H. H. S.

Rubber Masks for Use in Decorative Sandblasting

It woud be appreciated if you would send us the names of manufacturers of rubber masks which can be used in decorative sandblasting.—C. F. Co.

We have very liittle information about who manufactures rubber masks. Can some reader help us on this?—ED.

Toys and Novelties

I will appreciate it if you will send me April and May issues of INDUSTRIAL FINISHING magazine—the ones containing articles on Wooden Toy Finishing. Within the past few months we have entered the toy business and will manufacture a line of high-class wooden toys and novelties . . . —H. R. B.

Dipping Machines Wanted

What have you got on dipping machines for croquet sets, especially a maker in Grand Rapids by the name of Smith?—I. Co.

Mr. C. W. Smith, M.E., of Grand Rapids, Mich., is now deceased. He did design and make excellent dipping machines. His business has been taken over by Bignell Machine Co., 40 Market Ave., N. W., Grand Rapids, Mich., but we understand that this concern is not making any dipping machines until after the war. Of course, you might write them and find out first hand just what the situation is at the present moment.

Another manufacturer of dipping machines is Apex Products Corp., 53 E. 10th St., New York, N. Y.

We would like to know of others in this line too, as we receive a con-

(Continued on page 116)

FOR THE PROTEXION OF
***Your* PRODUCTS**

. . . whether they be wood or metal . . . there just isn't any better finish than

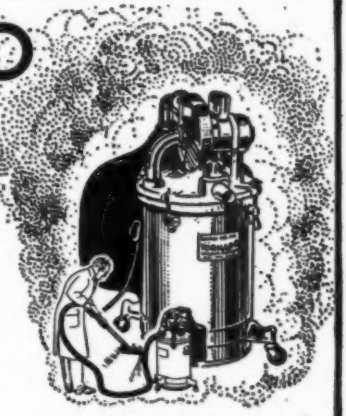
Dolan's

There's no "mistake" in that suggestion

"UNQUESTIONABLE QUALITY"

V. J. DOLAN & COMPANY, INC.
"Unquestionable Quality" INDUSTRIAL FINISHES
1830 N. Laramie Ave., Chicago
Berkshire 0100

TORNADO
settles your
DUST
problem



NOTHING means the "finish" of dust—except regular cleaning with the TORNADO which gets rid of it with its powerful suction, large capacity and easy portability. Quickly picks up dust, dirt, flux, etc.

Equipped with attachments for cleaning everything — floors, walls, ceilings, overhead pipes, work tables, etc.—TORNADO makes quick work of clean-ups. Take it to the job!

Write for details and FREE TRIAL Offer

TORNADO
BREUER ELECTRIC MFG. CO.
5094 N. Ravenswood Ave., Chicago 40

The famous Goodyear-built Vought Corsair FG-1 used by Navy and Marine pilots in the South Pacific and also by the air arm of the British Royal Navy. Goodyear Aircraft pridefully delivered its first Corsair to the Navy May 1, 1943, less than one year after ground was broken for the building. It has since delivered over 2000 others.

At the Goodyear Aircraft plant in Akron, Ohio, Navy's Corsair fighters must roll out on schedule. Quality finishing at wartime speed is always a prime consideration. Maneuvering these big brutes in a spray booth represented quite a problem in itself. But there were many other angles to consider, such as shadowless lighting, humidity and temperature control, exhausting paint-spray and fumes to reduce the fire and health hazard, air-filtering to exclude dust, and so on.

Binks engineers, working with Goodyear and Navy engineers, met all these requirements by the construction of a Dynaprecipitor water-wash spray booth (shown above), large enough to accommodate the plane.

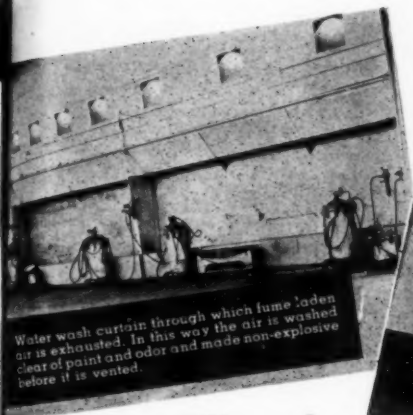
INISHING PROBLEM

MAY BE TRICKY TOO

BUT BINKS ENGINEERS WILL SOLVE IT

Whatever the requirements of your postwar finishing plant, you can rely upon Binks to provide the technique and the equipment—both carefully tailored to your individual needs and designed to do the job efficiently and economically. Through its wide experience, gained in developing new methods, and designing new spray-painting devices for finishing tanks, planes, shell-casings (inside and out), bombs, jeeps and a wide range of other materiel in important war plants all over the country, Binks is in position to engineer and install your complete finishing department or any part of it.

See your nearest Binks engineer for information and advice in connection with your finishing problems,—and for a complete description of Binks spray painting equipment and accessories, write for our new catalog-data book which is yours for the asking.



Water wash curtain through which fume laden air is exhausted. In this way the air is washed clear of paint and odor and made non-explosive before it is vented.

Control equipment for the operation of the Dynaprecipitor water wash spray booth.

BINKS

ARMY E NAVY

Send for your copy of this Catalog-data book today.

MANUFACTURING COMPANY

3114-3140 CARROLL AVENUE • CHICAGO 12 ILLINOIS

OUIS — MILWAUKEE — BOSTON — LOS ANGELES — SEATTLE — WINDSOR, ONTARIO, CAN.

This buying

THE LILLY COMPANY

HIGH POINT, N. C.

"Sight Unseen" is about to end...

Now that the war in Europe is over and the war with Japan in the final stage, this war emergency is nearing an end. When the emergency is over your customers are going to start buying carefully once more, as they did before the war. They're going to be more particular about quality—they're going to be exceptionally particular about the appearance and endurance of the finish on your product.

Lilly Finishes can help you meet this challenge. We have been making finishing materials for 80 years (since 1865) and since 1921 (24 years) we have been making specific finishes for specific products and purposes. Nearly 15 years ago we adopted the slogan "With the right finish—you'll finish right." This slogan applies today in war . . . and it will apply tomorrow in peace.

LILLY VARNISH COMPANY

INDIANAPOLIS, IND.

New high-solids lacquer . . .

The new high-solids lacquers can give twice the covering power of old-style lacquers . . . enable operators to complete more pieces in a given time . . . because they provide far thicker coatings when dried. Each coat now does the work of two! The answer is more solids, less solvent. Yet, despite the new finishing speeds and economies afforded, their durability and appearance are not sacrificed. For production line finishes on metal, wood, fabric, glass, rubber, leather, paper, plastics—use high-solids lacquers and save!

LIKE GIVING EACH SPRAY OPERATOR TWO GUNS

ASK YOUR LACQUER SUPPLIER

for complete details and application data on these new time-and-money-saving lacquers, as they become available. Hercules does not make high-solids lacquers, but concentrates on the production of the highest quality nitrocellulose from which they are made.

CL-53A

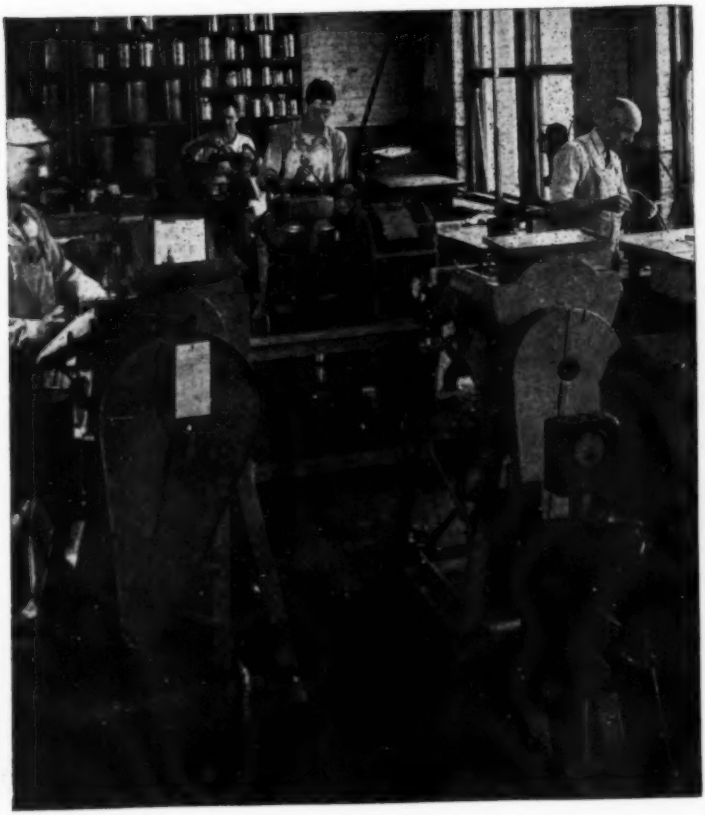
HERCULES

Cellulose Products Department

HERCULES POWDER COMPANY
INCORPORATED

928 Market St., Wilmington 99, Del.

Miniature Factory Points



PPG PITTS PITTSBURGH

Way to Better Paints

IN the vast Pittsburgh Paint Laboratories is actually a factory-within-a-factory—a completely equipped paint plant in "capsule" form. Here everything for making experimental batches of paints and enamels is virtually within arm's reach—within the confines of one room. Here Pittsburgh technicians have all the facilities in a "package" for making tests and experiments, for developing new products, for improving existing ones.

Research Keeps Pittsburgh Ahead!

● Out of this constant search for something new and better—out of this amazing miniature paint factory—have come some of the greatest advancements in the history of paint making. It is just one example of Pittsburgh's ceaseless vigilance to make certain that industrial finishes bearing the "Pittsburgh" label *continue* to measure up to rigid standards of excellence. There is no better proof that users can *continue* to look to "Pittsburgh" for quality-controlled finishes with a PLUS over specifications!

• • •

PITTSBURGH PLATE GLASS COMPANY, Industrial Paint Division, Pittsburgh, Pa. Factories: Milwaukee, Wis.; Newark, N. J.; Houston, Texas; Los Angeles, Calif.; Portland, Ore. Ditzler Color Division, Detroit, Mich. The Thresher Varnish Co., Dayton, O.

BURGH *Industrial* **FINISHES**

STANDS FOR QUALITY PAINT AND GLASS

Do you know...?

Q. About what percentage of the equipment built to produce war materials will be useful for peacetime production?

☐ 10% ☐ 50% ☐ 90%

A. Experts estimate that about ninety percent of the machinery and tools built to produce war materials can be converted to peacetime use. Of the remaining ten percent, the major portion will be stored away.

In packaging machinery and parts for storage, care must be exercised to protect metal surfaces against corrosion. Here, Permacel moisture-proof tape (Utilitape) plays an important role. Used to package planes and tanks for overseas shipment, this tape protects against outside moisture perfectly.

No. 15 in a series

Q. Production chart was made with:
☐ Colored paper ☐ Tapes ☐ Pencils

A. Chart was made with Permacel's companion, Texcel cellophane tape, which is made in many colors as well as in a transparent form. Colored Texcel is also widely used to identify fuel lines and wires. Transparent Texcel mends torn letters, ledgers, etc.

Q. They identify shells in canisters by:
☐ Their color ☐ Shape ☐ Tape seals

A. Colored, imprinted Permacel cloth tape (Jonflex) identifies shells in canisters and holds canisters together. After the war, this tough, quick-sticking tape will prove invaluable to manufacturers of peacetime products for use in sealing and identifying.

Q. The title of this booklet refers to:
☐ Electricity ☐ Tape ☐ Wrenches

A. Pressure-sensitive tape. This booklet shows how Permacel Industrial Tapes help speed production and cut costs all along the production line. Illustrates many uses that may prove helpful in *your* business. Write for your free copy: Dept. IF-15, Industrial Tape Corporation, New Brunswick, N. J.

IMPORTANT: *Our research laboratories are at your disposal for development of special tapes to meet war and postwar needs.*

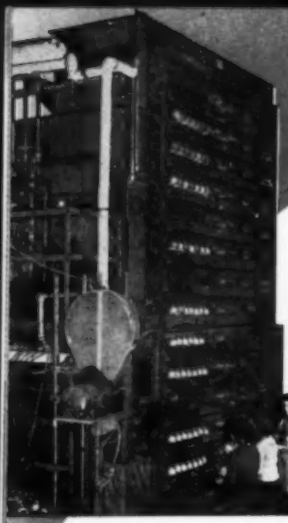
Permacel Industrial Tapes

INDUSTRIAL TAPE CORPORATION

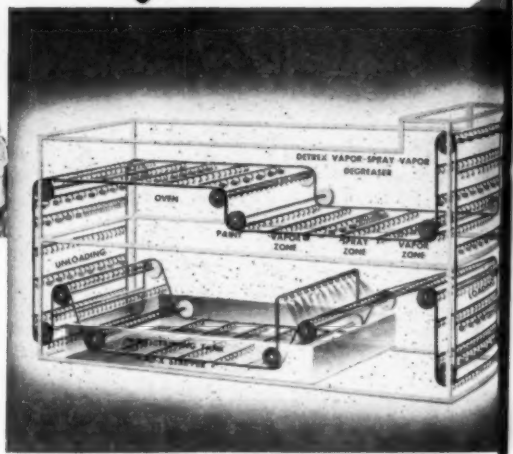
New Brunswick, N. J.

Makers of Texcel Tape

"PERMACEL" REG. U. S. PAT. OFF.



Clearing the Line . .



WITH TRIAD X

To keep racks and conveyor hooks free from paint build-up, more and more production lines are using Triad X in the strip tank as illustrated, stripping the fixtures clean each time around. The effective stripping action of Triad X on paints, enamels and lacquers prevents contamination of cleaning and bonderizing solutions. As it eliminates any need for removing the racks for cleaning, it permits continuous operation of production conveyor lines.

Triad X is a heavy-duty stripper that has proved its efficiency in countless other applications; for instance:

- Cleaning paint drums
- Stripping parts preparatory to repair or refinishing
- Cleaning up contaminated booths prior to use of Triad Spray Booth Compounds

If you have a stripping job of any sort, it will pay you to talk it over with a Detrex service engineer. No obligation, of course.

GUARANTEED PERFORMANCE: Like all Triad Alkali Cleaning compounds, Triad X is shipped on a guaranteed-performance basis for thorough testing in your equipment.

BUY MORE BONDS

DETREX Corporation

13019 HILLVIEW AVE.

DETROIT 27 • MICHIGAN

A White Enamel that *STAYS WHITE*

• Out of Glidden's laboratories has come a superb white enamel with unusual properties of resistance to the elements which cause discoloration in ordinary enamels. It is called NUBELITE.

Nubelite is a carefully blended combination of liquid plastic, heated at pre-determined temperatures to produce a protective surface unequalled for beauty, toughness and durability.

Its unusual resistance to fruit acids, grease, heat, sunlight and salt-laden humidity, makes Nubelite a preferred finish for stoves, metal cabinets, refrigerators and other household appliances.

Glidden's paint engineers will be glad to offer suggestions on adapting Nubelite to the specific requirements of *your* products. Write today for full details and demonstration. No cost or obligation to you.

THE GLIDDEN COMPANY · Cleveland 2, Ohio

TIME-TESTED

GLIDDEN · *Pacemaker in Paints*

LACQUERS
SEALERS
• SHELLAC •
ENAMELS
UNDERCOATS
STAINS GLAZES
NOVELTY FINISHES
•

IN STEP WITH THE TIMES

Industrial Finishes
that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

• FOR APPLICATION BY ALL METHODS

JAMES B. DAY & CO., CHICAGO

A *Finishing* SYSTEM THAT *IS* AUTOMATIC

Designed and built by

MAHON ENGINEERS *for the finishing of* AIRPLANE PARTS

This Mahon painting-drying-ventilating system, for the finishing of airplane parts, is the nearest approach to *completely automatic* operation it is possible to devise. The loading, unloading and spray painting are the only manual operations involved. A single button starts it. A single button stops it—or it shuts down *automatically* in case of electrical failure or other causes. First, the air supply fans start—the ventilating system gas heaters are ignited—air, drawn from outside, is heated to 80° F., thoroughly filtered, and evenly distributed throughout the room. Next, the spray booth pumps and exhaust fans go into action. Finally, the oven fans clear the ovens—the ovens are ignited—the conveyors are set in motion—and the system is in full operation—speedily—safely—*automatically*.

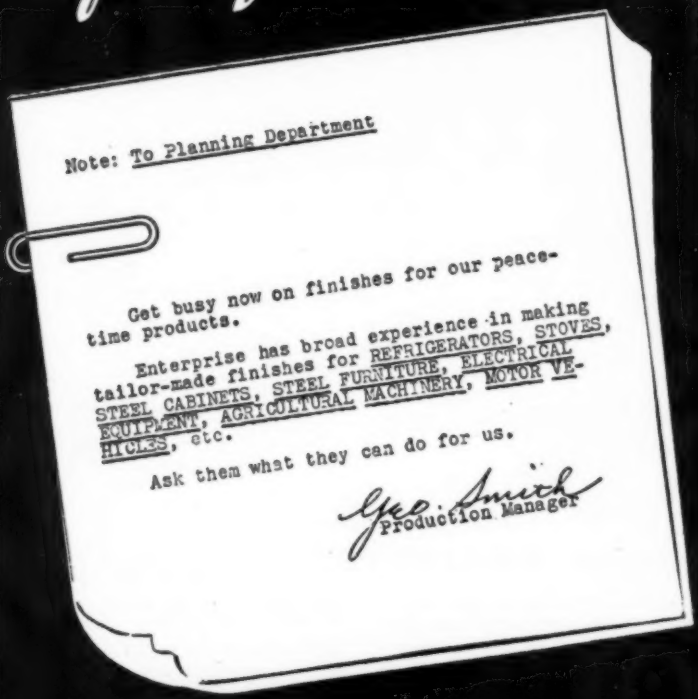
Automatic Finishing Equipment to fit your specific requirements can be just as effectively developed.

Address Inquiries to INDUSTRIAL EQUIPMENT DIVISION

THE R. C. MAHON COMPANY
DETROIT 11 CHICAGO 4

Designers and Manufacturers of Metal Cleaning Machines, Rust Proofing Machines, Hydro-Filter Spray Booths, Ovens of All Types, Filtered Air Supply Systems, Plastic Foam Dust Extractors—and Many Other Units of Special Production Equipment—Including Complete Finishing Systems

Request from Production


Note: To Planning Department
Get busy now on finishes for our peace-time products.
Enterprise has broad experience in making tailor-made finishes for REFRIGERATORS, STOVES, STEEL CABINETS, STEEL FURNITURE, ELECTRICAL EQUIPMENT, AGRICULTURAL MACHINERY, MOTOR VEHICLES, etc.
Ask them what they can do for us.
Geo. Smith
Production Manager

Your Inquiry Will Be Given Prompt Attention

ENTERPRISE PAINT MFG. CO.

Industrial Division

PEORIA & VAN BUREN STS. CHICAGO, ILL.

17 REASONS WHY IT'S DIFFERENT

AND EVERY REASON IS INDICATED BY OUR PATENT CLAIMS ON THIS DESIGN

PENETRAY

Reduced glare is an important reason for your selection of a Specific Near Infra-red source. Next, for baking, drying and evaporating, a radiant source peaking between 13,000 and 14,000 Angstrom Units is most desirable. These are two definite reasons for your use of Penetray.

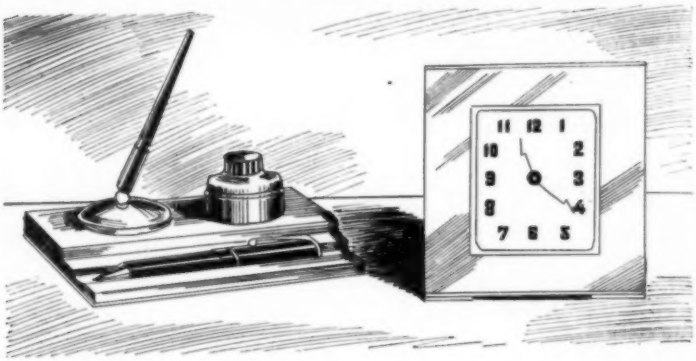
Penetray production is unusually costly because of filament and construction detail. This, in our opinion, is necessary to a quality product. Lamp life and efficiency is improved - resistance to vibration being maximum. A nonex arbor protects against softening of glass and resulting distortion of filament due to sagging. Radiant energy is emitted in both the vertical and horizontal.

Honestly, now, don't you want to know more about this new product and the prospect of improved results?

INFORMATION ON REQUEST - WITHOUT OBLIGATION

LEARN TO SAY PENETRAY

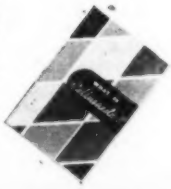
VERD-A-RAY CORPORATION - TOLEDO 5, OHIO



Coat the bottom of Desk Appointments with

Cellusuede FLOCK

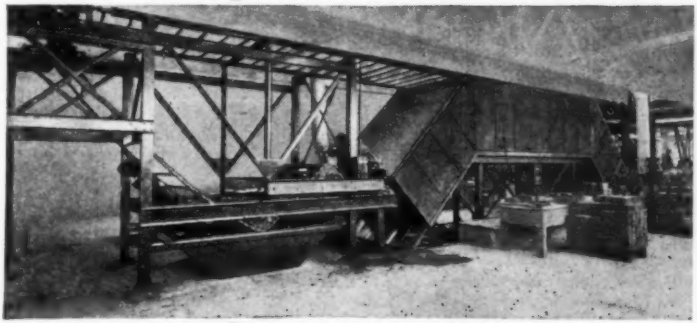
A coating of Cellusuede Flock on the bottoms of pen and ink sets, clocks and other desk appointments, not only lends the enrichment of brilliant color and a soft velvety "feel" to the bases, but provides the surface on which the articles are placed with ample protection from scratching or marring. A trial application will show you how easily this versatile material may be handled. Both Cotton and Rayon Flock are available immediately in a variety of colors.



Write today for FREE Booklet and Prices.

CP Cellusuede Products, Inc.
ROCKFORD, ILLINOIS

PRODUCT FINISH
will be an important factor



IN POST WAR MARKETS

To capture the highly competitive post war consumer market, manufactured products generally will have to be attractive. One of the important factors in producing a good finish economically is a well engineered oven.

A good finishing oven will have the following qualities:

1. Close time-temperature control.
2. Flexibility in its operating temperature range.
3. Ability to handle the heating and cooling cycle best suited to the product and finish being used.
4. Capable of using the most economical fuel.
5. Minimum fuel requirements due to the use of insulation and recuperation.
6. Minimum operating labor requirements.
7. Produces a uniform product day after day
8. Constructed to operate safely regardless of the human element.
9. Minimum of maintenance requirements.
10. Avoids making adjacent working areas uncomfortably warm.
11. Fuel consumption proportionate to the amount of load being processed.

Young Brothers Company, with 50 years of experience in this field, can provide ovens with all these requirements. If you contemplate expanding your facilities or replacing your present oven equipment talk the matter over with a Young Brothers engineer There is no obligation.

YOUNG BROTHERS COMPANY
6524 MACK AVENUE **DETROIT 7, MICHIGAN**

YB CO ESTABLISHED IN 1896

Pre-Treating Metals for Quality Finish

BY GILBERT C. CLOSE

WITH reconversion in the offing, many companies will soon be faced with altering their finishing systems to meet the demands of new products. Right now is an excellent time to make a comprehensive survey of the various finishing processes available, and to select a combination of processes that will offer the ultimate in protection and appearance. In this conjunction, every industrial finisher will do well to make a thorough study of the various rust-proofing processes available, and the advantages they will offer to his particular product.

Rust-proofing is not new. But recent improvements, both in process efficiency and methods of application, will be a revelation to the industrial finisher who last employed the process some 10 to 15 years ago.

Research has proven that the application of an organic finish directly over bare metal is an inferior solution for the corrosion problem. This suggests that the surface of the metal should be made as impervious to corrosion as possible prior to the application of any finish. This latter function is fulfilled by rust-proofing.

"Cleaning" as a Pre-Treatment for Metal to be Painted

Some popular misconception accompanies the various surface pre-treatments for metals. For clarification, the pre-treatments may be classified under three main types.

In the first group, the various cleaning processes for metal—such as alkali, solvent, or vapor cleaning—produce a chemically clean surface but they do not give its surface greater corrosion resistance. In fact, the cleaning processes just mentioned will make the metal very susceptible to corrosion. Painting must follow soon after cleaning to prevent the accumulation of surface oxides.

Clean surfaces of iron and steel will rust quickly unless they are immediately given a rust-proofing treatment or a protective coating. They can be painted, but if the paint film is scratched to expose the metal, rust can start, and once started, it may spread under the adjoining paint film, causing the film to flake off. But if the metal is given an effective rust-proofing after cleaning and before painting, it need not be painted immediately; then, if the paint film is scratched through, no rusting will occur. If the scratch is deep into the metal, the exposed metal may rust but the rust cannot spread farther because of the rust-proofed surface under the paint film.

A second group of pre-treatments is employed primarily to roughen the metal surface, thus increasing the mechanical adhesion of subsequent paint films. Mechanical roughening may be accomplished by spraying the metal surfaces with abrasives or shot. Chemical roughening may be accomplished by using one of the acid-etching solutions. Here again the surface composition of the metal is not altered, and the roughening operation must be quickly followed by painting to prevent surface oxidation.

Rust-Proofing After Cleaning and Before Painting

The third group of pre-treatments include the various rust-proofing processes. "Rust proofing" in this sense is literal, as the same type of treatments may be employed on the light alloys where "rusting" in the general sense does not occur. Pre-cleaning is necessary with some rust-proofing solutions; others accomplish cleaning and chemical passivation simultaneously. In either event, *the principle function of the solution is to transform the metal surface into a non-metallic coating that offers a high order of resistance to corrosion, while at the same time providing an excellent bonding surface for subsequent paint coats.* The non-metallic coating formed by the rust-proofing solution is not a chemical deposit on the surface of the metal, but an inherent part of the metal itself.

Most rust-proofing processes are economical, easy to apply, and require a minimum of additional shop equipment. They do not alter the dimensions of the part in any way, and may be employed either as a base for subsequent paint coats, or on mechanically moving parts that will not be painted. It would be impossible to describe all of the rust-proofing processes currently available, but a few of the better known will be sufficient to give an overall picture of the field.

Deoxidine and Lithoform Treatments for Metals

One well known company offers several products that have proven their value as rust-proofing compounds. Deoxidine and Lithoform are two to mention. Deoxidine is an acid-cleaner solution, prepared by mixing one part of the chemical with two or three parts of water. It may be used either as a spray, brush-on solution, or as a chemical dip. No pre-cleaning is required unless the parts are heavily oiled or greased. Mild rust is no deterent to the process, but heavily rusted spots should be cleaned by some form of abrasion prior to treatment.

Deoxidine eradicates existing rust, and neutralizes rust-producers on the surface of the metal. At the same time it produces an etched inert surface, highly resistant to corrosion and offers excellent characteristics for bonding. The treatment requires very little time to apply, and if parts are subsequently rinsed in hot water to facilitate drying, they are soon ready for the paint shop.

The chemical, Lithoform, is compounded specifically for the pre-treatment of cadmium plated or zinc coated surfaces that will be subsequently painted. Every experienced finisher is aware of the difficulties inherent with applying an organic finish directly to either cadmium or zinc. The deteriorating agencies of the atmosphere (oxygen, carbon-dioxide, and moisture) attack the painted surfaces of galvanized iron and react with the cadmium or zinc to produce a series of complex oxides and carbon-

ates. The oxides and carbonates, in turn, react with the fatty acids in the paint oils and gradually break down the bond between the metal and the paint.

Pre-treatment with Lithoform transforms the metallic surface into a dense coating of metal phosphate. This phosphate coating is impervious to the deteriorating agencies just mentioned, while at the same time offering an excellent base for paint.

Lithoform is a non-inflammable chemical, and may be employed as a pre-treatment for all types of organic finishes. It is not affected by temperature, therefore may be used as a base for baked enamel, japan, etc. As with Deoxidine, Lithoform may be used as a spray, dip, or brush-on application.

Bonderizing and Parkerizing; What, Where, When, Why

Bonderizing and Parkerizing are two processes that have been developed by another well known company. Bonderizing is intended primarily as pre-treatment for painting, while Parkerizing is used extensively on parts that will not be subsequently painted.

Bonderizing may be applied by either immersion of mechanical pressure spray, depending upon the size of the parts and the number to be processed. Pre-cleaning is necessary, using either an alkali or solvent degreaser. Time required for the treatment will vary between one and five minutes, depending upon the density of the coating desired.

Bonderizing produces a hard non-metallic crystal phosphate surface on the parts treated. The crystal phosphate is insoluble in water, thus a high order of moisture resistance is obtained. When subsequent finish coats are applied, a portion of the finish is absorbed in the minute cavities between the phosphate crystals, thus creating a very strong bond.

Bonderizing is applicable to iron and steel, galvanized and galvanealed surfaces, zinc coated and zinc alloy materials, and cadmium plate. The process has proved very valuable in the pre-treatment of zinc-base die castings for producing a surface to which paint will adhere.

Parkerizing, like Bonderizing, is a chemical treatment wherein the surface of the metal is transformed to an insoluble phosphate highly resistant to corrosion. As dimensions are not affected, it is applicable to parts which will operate unpainted and which require very close tolerance limitations. Parkerizing may be used as a paint base, but when baked finishes are in order, Bonderizing is the recommended treatment.

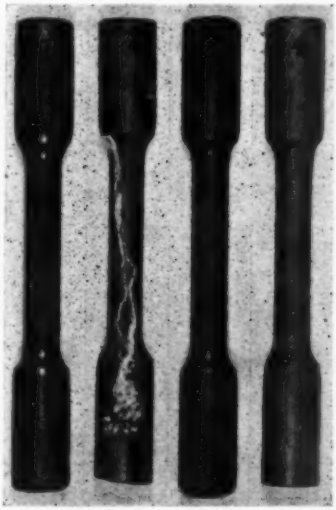
Parkerizing is applied by hot immersion. Parts must be thoroughly pre-cleaned prior to treatment. Time of treatment will depend upon the density of the coating desired. When parts will not be painted, final finish is obtained by oil dip. If a lusterous black finish is desired, the parts may be dipped in a black stain prior to the mineral oil treatment. The fine grain, smooth coating developed by the Parkerizing process makes it particularly adaptable to screw machine parts and other small components of complicated mechanisms.

Metalprep; What it is and How it is Used

Metalprep, available in several commercial forms as well as special formulas for specific purposes, is produced by still another well known concern. The chemical is furnished in a concentrated form, and must be mixed with two or three portions of water prior to

use. Metalprep will remove slight accumulations of surface rust, while at the same time inhibiting surface impurities that cause rusting. The solution has excellent penetrating powers, and works very well on material with a pitted or roughened surface.

Various Metalprep formulas are available for treating iron and steel and their alloys, the light alloys such as aluminum and magnesium, cadmium plated surfaces, and galvanealed products. The Metalprep treatment may be applied by either spray, dip or brush. The chemical will produce a slight etch on the surface of the more active metals. It is also employed for removing corrosive impurities from the surfaces of such metals as copper, brass, and lead.



This illustration indicates clearly the value of pretreatment of zinc-base cast material. All bars were finish coated with a urea-formaldehyde type of coating. Prior to painting, they were pretreated as follows: Bar No. 1 (left), Bonderized; Bar No. 2, no pretreatment; Bar No. 3, Lithoform; Bar No. 4, Metaseal. All bars were exposed 30 days in a salt spray cabinet.

Metaseal; Its Purpose and Characteristics

Metaseal is a relatively new product available from a concern in the east. Metaseal is peculiar in that it forms a very thin, tough film over the surface of the parts. This film will protect the parts during extended storage, and may be removed or left intact prior to the application of an organic finish.

Metaseal may be applied by either dip, brush or spray. It is used warm and without dilution, and because it is very thin and flows readily, it is easily applicable to small irregular parts such as knurled bushings, screw parts, etc.

With a vastly increased supply of aluminum available, postwar manufacturers lacking experience with this metal will undoubtedly find it entering many phases of their production. Pre-treatment for aluminum is just as vital as pretreatment for the heavier alloys. These treatments are usually anodic in character, efficient, and easily applied once the required equipment is installed.

Alumilite and Alrok for Aluminum

The Alumilite and Alrok treatments are both recommended for aluminum. Either treatment produces a hard, impervious oxide film on the surface of the metal. The treatments are of the electrolytic type, and require special equipment for application. Precleaning is necessary. It would be pointless at this time to expand on the technique of either process, but suffice to say that they deserve thorough investigation by anyone

contemplating the finishing of aluminum products in postwar production.

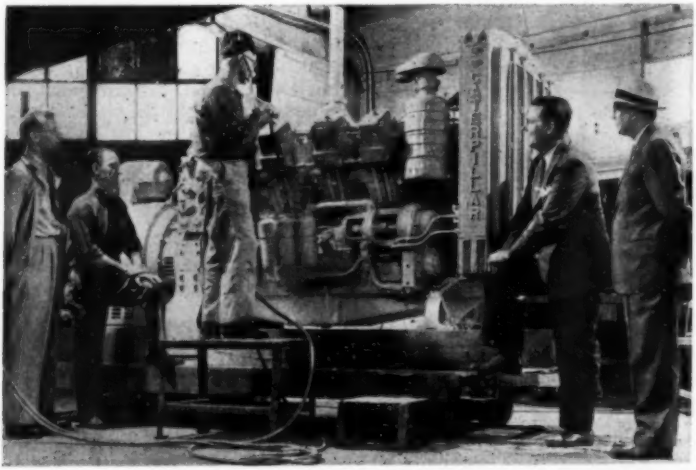
A dangerous attitude to assume is that anything will sell in the inflated postwar market for consumer goods. The manufacturer who desires to assure his future will take advantage of this attitude to turn out products of high enough quality to assure himself repeated orders. From the industrial finisher's standpoint, pre-treatment of metal to insure the life and durability of finishes will furnish the edge in quality necessary to make his customers come back for more!

AUTHOR'S NOTE: The material in this article was obtained mostly from research results in various pre-treatments, while I was with Douglas Aircraft Co., Santa Monica, Calif. Not exactly research, but I tested about a dozen pre-treatments just to see what they would do. All mentioned in the article were very satisfactory.—G. C. C.

Back to Bright Colors

IT WAS a joyous occasion recently at Caterpillar Tractor Co., Peoria, Ill., when the first Diesel Electric Set in several years emerged from a spray booth in the paint shop wearing a bright coat of famous "Highway Yellow."

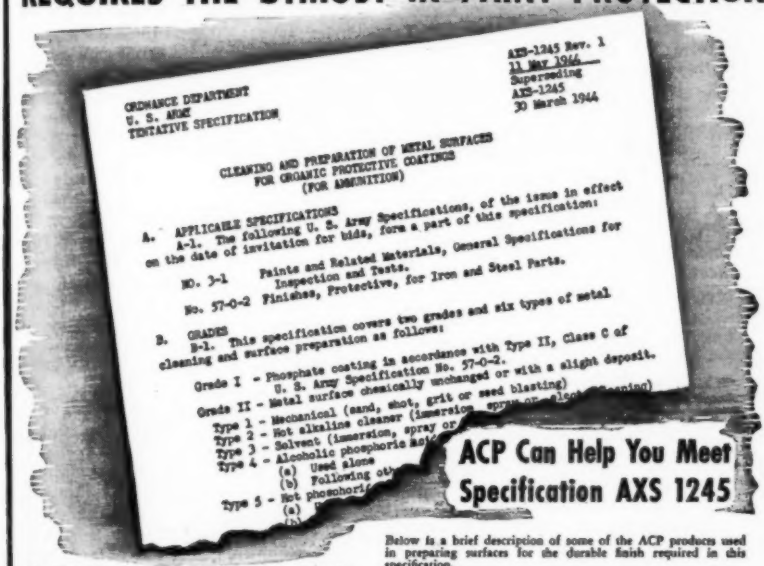
For the past few years all "Caterpillar" products have been painted Uncle Sam's "Lustreless Olive Drab" color—even those few going to critically important jobs on the home front—because of a scarcity in chrome which is one of the main ingredients in the "Highway Yel-



On hand to watch a spray painter apply the color with which "Caterpillar" products have been closely identified for many years were, left to right, A. O. Walker, general foreman of the paint shop; Don Henson, general foreman, industrial engine assembly; Henry H. Howard, general sales manager and William Nauman, factory manager of the organization.

WAR IN THE TROPICS

REQUIRES THE UTMOST IN-PAINT PROTECTION


ORDNANCE DEPARTMENT
U. S. ARMY
TENTATIVE SPECIFICATION
AXS-1245 Rev. 1
13 May 1944
Superseding
AXS-1245
30 March 1944
CLEANING AND PREPARATION OF METAL SURFACES
FOR ORGANIC PROTECTIVE COATINGS
(FOR AMMUNITION)
A. APPLICABLE SPECIFICATIONS
A-1. The following U. S. Army Specifications, of the issue in effect on the date of invitation for bids, form a part of this specification:
No. 3-1 Paints and Related Materials, General Specifications for Inspection and Tests.
No. 57-0-2 Finishes, Protective, for Iron and Steel Parts.
B. GRADES
B-1. This specification covers two grades and six types of metal cleaning and surface preparation as follows:
Grade I - Phosphate coating in accordance with Type II, Class C of U. S. Army Specification No. 57-0-2.
Grade II - Metal surface chemically unchanged or with a slight deposit.
Type 1 - Mechanical (sand, shot, grit or seed blasting)
Type 2 - Hot alkaline cleaner (immersion
Type 3 - Solvent (immersion, spray or
Type 4 - Alcoholic phosphoric
(a) Used alone
(b) Following
Type 5 - Hot phosphoric
(a)
(b)
ACP Can Help You Meet
Specification AXS 1245

Our Technicians will be glad to assist you in adapting ACP products to meet Government Specification for metal cleaning and surface preparation for organic protective coatings. It is usually possible to adapt ACP products and methods of application to utilize your present equipment, thereby obviating delay and expense of new installations.

The experience of our technicians has enabled them to aid many manufacturers in overcoming serious difficulties in cleaning and conditioning ordnance as well as products for civilian use.

Below is a brief description of some of the ACP products used in preparing surfaces for the durable finish required in this specification.

DEOXIDINES—There are various grades and methods of application suited to the removal of varying amounts of rust and adapted to the different types of equipment in use.

DEOXYLYTE—For suitably adjusting the pH of *rinse* baths, properly, prior to painting.

RIDOSOL—An addition agent for improving detergent properties in emulsion cleaning.

PEROLINE—For preserving surfaces, in storage or transit, prepared properly for painting.

SOLVENT No. 3—Speeds stripping operations of paint, lacquer and enamel, in strong caustic baths.

RODINE—For inhibiting pickling acids.

Further information and technical data sheets will be forwarded on any of the above products. Address Dept. B-8.

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Metropolitan New York Area
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Brooklyn, N. Y.

Eastern Ontario and Quebec
Van Camp Products & Sales Co.
177 Portlimouth St., Toronto, Ont.

low" developed exclusively for "Caterpillar."

With a limited quantity of chrome now available, and because civilian users and dealers have always preferred the color, "Caterpillar" Diesel tractors, motor graders, engines and electric sets allocated to civilian users are now leaving the factory painted the familiar "Highway Yellow."

Traffic Paint Lines Rolled Away

AN ELDERLY friend of mine, a paint salesman in the days when lacquer was first appearing on the paint horizon, delights in recounting this experience:

In a town in which a certain paint factory was located, the traffic department was never satisfied with the drying time of marking-zone paints they purchased.

An "eager beaver" chemist at this paint factory, playing with lacquer for the first time, was duly impressed with its quick drying properties, and recommended a zone-marking lacquer. The city fathers, told of this remarkable product, fell all over themselves to place an order for a quantity for a practical test.

Came the day when the order was delivered. The traffic commissioner immediately detailed a crew to make a test on one of the downtown streets. All night they worked, laying out center lines, crosswalks, parking spaces, curbs, etc. They were elated with its speed of drying, its hardness, its smooth finish. Everyone went to bed happy. Their traffic paint problem was solved.

At noon next day the traffic commissioner telephoned the salesman. He wanted to meet Mr. Salesman at the scene of the test in 15 minutes. Overjoyed at the prospect of inspecting a perfect job with a satisfied customer, my friend hastened gleefully to the appointment, to receive congratulations and more orders—he thought.

His spirit took a quick drop, however, when he arrived at the scene. The lacquer, insufficiently plasticized and too high in nitrocellulose content, and applied over traffic dust and dirt, did not have sufficient adhesion. The paint film shrunk, pulled away from the surface of the street and, as spectators gazed in amazement, it coiled itself in gay loops and, helped along by a strong summer breeze, rolled merrily down the street! Away they went, yellow lines, white lines, red lines. What a day for the kiddies!

Fascinated, the two men watched until the last traffic line had disappeared down the street. What happened immediately thereafter, my friend no longer remembers, or cares to tell, but I've always had my suspicions.

That my friend continued to supply his city with zone paints only testifies to the fact that he was a good salesman . . . . and that a traffic commissioner can have a sense of humor.—H. H. MILLER.

Paisley Enlarges Chicago Plant

As a further step in a long range postwar planning program, Paisley Products, Inc., Chicago, is enlarging and modernizing its 4-story and basement factory at 1770 Canalport Ave.

According to Mr. Murray Stempel, V. P. & G. M., the expansion of facilities was necessitated by greatly increased demands for adhesives to meet the overseas packaging requirements of the Armed Forces. The firm has pioneered in the manufacture of synthetic resin, rubber and vegetable-base adhesives which serve both civilian and war packaging and fabricating requirements. Postwar plans include expansion of the packaging adhesive line.

WHEN war supply items fail to pass inspection it is often due to an unsatisfactory finish caused by insufficient or incorrect preparation of the underlying metal surface.

Parts Stripped and Cleaned Quickly, Easily!

However, don't think of discarding such rejects to the scrap pile. Frequently, by using specialized Oakite materials, the imperfect finish can be EASILY, QUICKLY, THOROUGHLY removed, the surface itself put in proper condition for refinishing and the rejects reclaimed at a surprisingly low cost. Ask us, for example, about FAST-WORKING Oakite materials and techniques for stripping . . .

Paint, Lacquer and Varnish
Black Oxide Coatings
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If you are now confronted with a reject problem, consult your nearby Oakite Technical Service Representative. He will make reclamation of parts EASIER by adapting time-tested Oakite methods to suit your particular work. Won't you write us today? There's no obligation!

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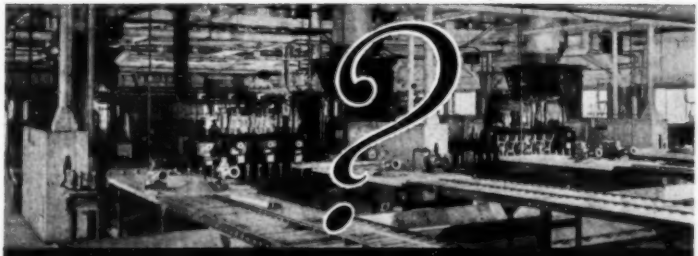

WHAT TO CONSIDER WHEN TAKING OVER AS A New Finishing Foreman

WITH CONVERSION and the consequent shifting of personnel, many a paint foreman will find himself in a new job in a new plant. To take charge of a finishing department in a strange plant is not a simple matter, and even though he may have been especially successful in his previous connection, it does not automatically follow that the same success will crown his next effort.

It is not sufficient that he have mechanical and technical skill; he must fit this skill into the requirements of the new job. In order to achieve maximum success in the shortest length of time, he must gather all possible information on the specific requirements and nature of his new job (preferably in a planned sequence). He should take over active control of the department only after he has acquired all of the necessary information.

What to Find Out and Where to Start

The fact that he was formerly successful indicates that he has the latent talent and ability to efficiently supervise a finishing department, but unless this talent is directed through the right channels and in proper sequence he can very easily stub his toe and stumble. In his old connection he may have had years to acquaint himself with the management, the products manufactured, the finishes used, methods, equipment, and personnel; on the basis of his complete, overall knowledge he was able to make correct decisions. In his new position he has to acquire all of this information in a very short time.

BY JAMES A. BEDE
Westinghouse Electric Corp.

There is so much data to be gathered that unless he makes a planned orderly search for information, it can all result in a jumbled confusion of strange faces and names, strange serial numbers and strange finishes. Especially is he apt to become all tangled in a maze of details which will confuse him as to the overall picture. The surest way to avoid such hazards is to keep before him a clear picture of the major issues and problems. The minor issues and details can then be placed in the proper subdivision. *(Contin'd on page 34)*

HORN *suggests—*

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NO DISCOLORATION
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The information to be gathered concerning the job can be divided into three major classifications:

1) WHO he is in the organization setup; how he ties in with management and the rest of the organization.

2) WHAT production load requirements are to be expected from his department.

3) How is the required work to be performed most efficiently.

It is advisable that the required information should be gathered, as much as possible, in the above sequence. Of course, many minor details can be filled in from time to time, but the major outline should follow the above order.

First, Determine Your Relationship and Management

1) Who is to give him his orders and schedules of production? 2) To whom is he to go with requests and suggestions? 3) Who are the other foremen and inspectors with whom he is mostly to come in contact? 4) What voice has he, if any, in determining colors and finish specifications, in testing and selecting finishing materials? 5) What is his status in selecting and purchasing finishing equipment? 6) What are the limitations of all requisitions to be issued by him? 7) Is he to operate on a budget? 8) What is his status in selection of personnel—in hiring and firing? 9)What is the Company's policy in enforcing discipline, in reprimanding or punishing deliberate offenders? 10) Is there a piece work, bonus or some other incentive system in operation?

These and similar questions should be carefully covered with management as early as possible, preferably as the first step before going into the shop. By all means it must not be assumed that the new man is informed on these points or that he will pick them up as he goes along. His views may not coincide with those of management, and he will probably find this out only by making mistakes.

Get Definite Information on Departmental Load or Activity

After he understands how he fits into the organization, he should obtain an overall picture of how much work, and of what nature, is to be performed by his department. He should obtain a list of the major items of production and the finish requirements for each. He should know the peak load to be expected, the average load and the minimum. He should determine the quantity of paints and solvents to be required and also the total man hours of labor. He should also know if maintenance or other non-productive labor charges are to be considered.

The above information can be tabulated from existing records, if the department has been in operation for some time, or it can be calculated from the sales or pro-

Taking over a new foremanship job, especially if it is a big one, involves considerable responsibility. Getting started properly with the management and his men means everything to a foreman. It means the difference between establishing oneself as a man of ability and importance, who will command respect, and one who is doomed to all kinds of troubles and worries, plus eventual "loss of face" and perhaps loss of job.

Protective . . .

Decorative . . .

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United Lacquer Mfg. Corp

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NEW ENGLAND MFG. DIVISION, EVERETT, MASS.

duction department estimates if it is a newly organized department. It may require considerable time to tabulate all of this information, but it should be done, for unless the new foreman has this information he is working in the dark and cannot formulate a planned course of action in operating his department and in working out various improvements.

Details to Learn About Departmental Functioning

When the departmental load is determined, the next step is to study how the required work can be most efficiently performed. Existing methods, equipment and personnel should be analyzed.

1) How are the paints stored, handled and prepared for use? 2) How are the products cleaned and handled? 3) Is the most efficient finishing equipment and application method used? 4) Is any of the equipment in need of overhauling? 5) Are the baking or drying facilities adequate? 6) Can improvements be made in the method of packing or delivering the finished product to its next destination? 7) Is there confusion in the way work is scheduled or routed through the paint department?

This survey should reveal a number of minor and possibly major potential improvements. Only the minor improvements, such as refinements of existing methods, should at this stage be advocated unless major changes are very obvious and necessary. It would be better to defer recommending basic changes until the new foreman has a more thorough intimate knowledge of conditions.

The ideal arrangement would be that up to this point the new foreman should have no departmental duties. In the first place it is hard for him to gather and study the data required if he has to be involved in running the department; and in the second place it is difficult for him to make correct decisions and give correct order until he has assimilated all of the important information required. Furthermore, nothing better can earn the goodwill, the respect and admiration of the crew than if he starts out right — if his first official act is to bring about improvements, even if the improvements consist of no more than to clean up and fix up the equipment.

Making an Appraisal of the Workers in Your Department

Up to this point also, he should not make any serious attempt to appraise any of the men in his department. There is danger in permaturely appraising a workman negatively. He may have formerly lost interest in his work because of previous disagreeable working conditions, therefore, if the new foreman's first act is to remove these disagreeable conditions it is surprising how these indifferent workmen will snap out of it, work with enthusiasm, and show real ability. If he can successfully apply his abilities as a finisher to the problems at hand, and if he can acquire all of the necessary information about the work, as outlined above, this fresh perspective can more than outweigh the handicap of his unfamiliarity.

It can thus be seen that the new paint foreman, no matter how skilled a finisher, should first make a thorough study of all angles of his job; his place in the organization; the nature of work to be performed by his department; the most efficient method of doing it; and ways of improving existing conditions.

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FOR that all-important first appeal to new customers, nothing clicks faster than a durable, eye-catching finish on your product—properly applied. And that's why it will pay you to have DESPATCH Engineers supply your finishing system. This assures you of up-to-the-minute equipment, smoothly coordinated to do the job right.

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And it will help you get your product to the market sooner, with the kind of finish that wins and holds customers.

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Some interesting experiences with different materials, equipment and methods for preparing surfaces and painting a variety of commercial trucks in several colors to suit customers.

FACTORY SETUPS FOR PAINTING *Commercial Trucks*

BY BRAMWELL SIMPSON

OUR COMPANY was one of the first truck manufacturers to turn to the use of synthetic enamels for finishing commercial trucks. Our experience with these types of materials covers a period of 14 years. During this period, we tested and tried a great number of formulations from different paint manufacturers, including primers, primer surfacers, enamels and inside cab finishes, such as wrinkles and flocks.

Our policy, in regard to our truck finishes, has been to make one manufacturer responsible for formulating our entire range of materials. We adopted this policy because the finish manufacturer then knows the exact formulation of all materials and is able to more easily trace the source of any trouble. Also, in case of any improvements in material or formulation, these can be worked into our finishing system without too much interference with our scheduled production.

Our Unfortunate Experiences with Early Synthetic Finishes

Our first experiences with synthetics were not too happy. Various manufacturers whom we contacted were still more or less in the experimental stage on this type of material, and we received lots of ideas, some good and some bad. We also ran into a few amusing experiences and a few not so funny.

I have in mind one case where we primed 40 trucks with a synthetic primer which had been specified by the customer. The trucks were to be delivered in the prime coat. The primer seemed to be a good product, having such qualities as good drying, excellent filling, and seemingly good adhesion. When primed, the trucks were placed in a parking lot ready for delivery. Suddenly it began to rain. One of the men standing near the door began to yell, "The rain is washing off the primer." Sure enough the primer was trickling off the trucks with the water. We had to strip all 40 trucks and reprime them with our own oxide primer.

Another example of our difficulties came later. We were offered a black synthetic finishing enamel which was going to eliminate our japan room entirely. Drying time for this synthetic material was nearly as fast as lacquer, its coverage was excellent, gloss wonderful, flow super. It lived up to these claims until the next day. I tested it with a coin and it flew off like powder. When I gave it a bend test it popped off all over the place.

Of course this was in the early days of synthetics, when most man-

Prep Products have served well during wartime production in the effective cleaning and treating of metals before painting . . . In this way assuring good paint adhesion that would pass strict Government requirements. This proved superiority should be your guide in selecting this outstanding line for use in present or postwar production to provide the proper foundation for paint and an enduring finish.

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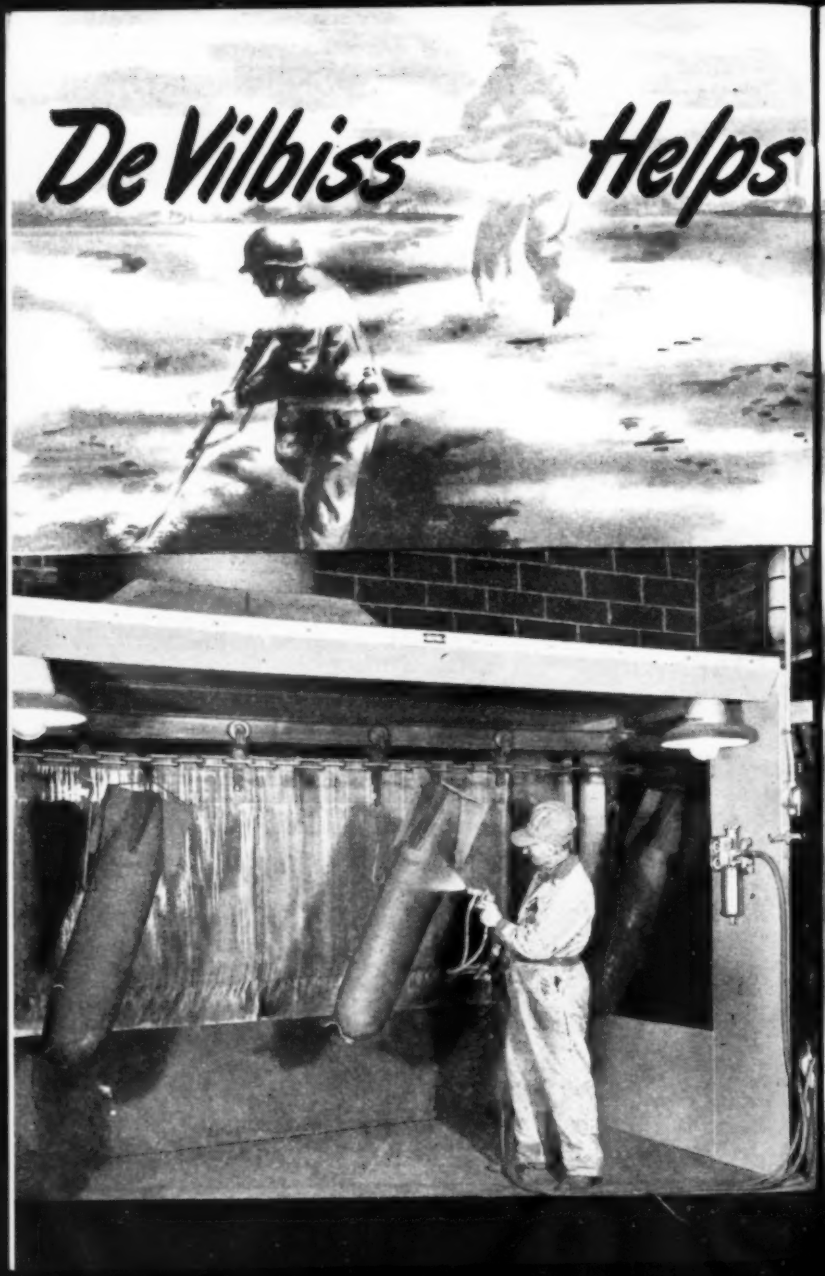
—Types 1 and 2.
U. S. Army Spec. AXS—1245—Types 4 and 5.
Engineers' Corps Spec. T—1184—F.
U. S. Army Air Corps Spec. 98—20007.

NEILSON CHEMICAL CO.

6562 Benson Street, Detroit 7, Michigan.

Windsor, Ontario (Hardie Trading Pty., Agents Melbourne, Australia) **Los Angeles, California**


De Vilbiss Helps

Screen our Attack

Smoke bombs used to cover our attack forces are made by Aerial Products, Inc. at Merrick, L. I. And with so many fighting units on the far-flung Pacific fronts, we need a lot of smoke bombs—and every bomb must have tough, corrosion-resisting paint protection.

To speed these smoke bombs over the finishing line, Aerial Products uses a streamlined DeVilbiss Spray System (see left). Moving rapidly through a conveyorized DeVilbiss Water Wash Spray Booth, each bomb gets its necessary protective coating from a DeVilbiss Gun.

The same DeVilbiss Engineering that helped to get top speed and efficiency in smoke bomb painting may also help you to improve your postwar finishing operations. A DeVilbiss engineer will gladly discuss this with you.

THE DeVILBISS COMPANY • TOLEDO 1, OHIO
Canadian Plant: Windsor, Ontario

DE VILBISS
Spray Systems

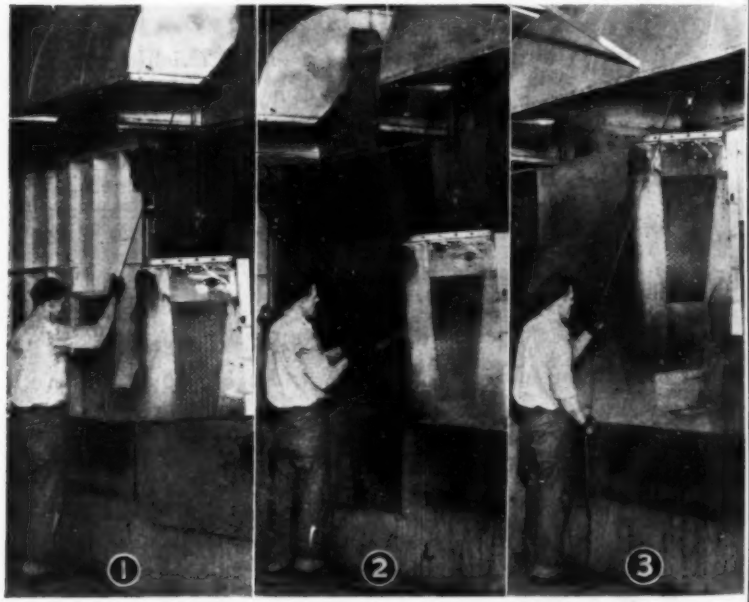
SPRAY EQUIPMENT • EXHAUST SYSTEMS
AIR COMPRESSORS • HOSE AND CONNECTIONS

ufacturers were experimenting with different formulations and ideas. When we finally selected a manufacturer and a product that seemed to suit our requirements, we had more and more experiences and changes in formulation, finishing procedure, and equipment. The men had to be taught how to handle this type of material in order to get a smooth job with the right amount of flow and coverage.

Most of our engineering changes and retooling took place gradually, a department at a time. At this time, of course, with the exception of owners of large truck fleets, there was not the demand for color such as we have today, and these jobs were hand painted. We recognize the desire of individual owners for colors according to their own particular tastes and, since we were building custom trucks, we planned our departments to take care of this custom demand.

Cleaning, Rinsing and Drying Sheet Metal Parts

The first plant department to be reorganized was the sheet metal department. This department handled the hoods, fenders, aprons and gas tanks. At this time these



No. 1 shows workman pulling a fender from the degreasing tank, as described in this article. No. 2 shows the cold-water high-pressure rinse in operation. No. 3 shows same fender being dropped into the boiling water rinse; from here it is placed on the conveyor to dry. Starting from the right and moving to the left, you have essential views of the entire cleaning process: degreasing tank, pressure wash, and boiling water rinse.

SILCO

GLASS-BASE SPRAYED-ON PROTECTIVE COATING FOR STEEL & BRASS

SILCO is highly resistant to corrosion and abrasion. It withstands heat up to 1000° F. Comes in two pleasing eggshell surfaces and in ALL COLORS! Easy to work. Bakes at medium temperatures in any industrial oven.

Muffler & Exhaust Pipe Finished with SILCO, Greatly Lengthening the Service Life of the Installation

Ideal for

Mufflers
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and for an infinite number of other products —making SILCO an important addition to any industrial finishing department. Non-priority. Sample on request.

BLACK-MAGIC

ONE-BATH OXIDE BLACK

For all steels except stainless. Goes on fast. May be formed after processing. Effective rust inhibitor, excellent bond for paints and lacquers. Simple operation. Chemical reaction at 300° F. Non-priority. Ordnance approved.

There are also BLACK-MAGIC baths for zinc, copper, brass, cadmium. The "Black Book" tells all. Send for it.

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WITCH-DIP WITCH-OIL FINAL FINISHES

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Cleaners Wetting Agents Add Inhibitors Heat Treating Salts

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CHEMICAL COMPANY

MODERN METAL FINISHES

2446P Main St., Stratford P. O., BRIDGEPORT, CONN.

CHICAGO OFFICE: 111 W. Jackson Blvd.—DETROIT: June & Co.—CLEVELAND: Universal Paint & Varnish Co.—ST. LOUIS: G. S. Robins & Co.—INDIANAPOLIS: Stovall Equipment Co.—OAKLAND, CAL.: Geo. A. Kushman Co.

pieces were mostly japanned. The material we selected was an alkyd-base synthetic, which would force dry at 180° F., or dry hard enough to handle overnight. We built our sheet metal finishing department around this material.

Our first problem was to wash and degrease the metal. The first thing we tried for this operation was high pressure steam. This was not really satisfactory, as it filled the place with steam and it made a terrific noise. We called in a manufacturer of cleaning compound and installed a steam-heated wash tank—one large enough to immerse the largest piece of metal. We filled this tank with a special cleaning compound. The metal was washed with a brush, followed by a cold water rinse, and then immersed in a clear hot water rinse. It was then blown off with compressed air. This was satisfactory for some time—that is, so far as cleaning was concerned—but it was not fast enough for our production line.

Our engineers finally designed a large tank that was heated with a gas flame directed into large steel tubes which extended through the bottom of the tank. The flame was automatically controlled so that the temperature of cleaning fluid was such that the fluid was in constant motion. We could immerse sheet metal for three complete trucks in this tank, and as we drew out one we replaced it with another.

The constant motion of the water, along with an improved cleaning compound, dispensed with the tedious brushing operation. After an immersion of 20 minutes, the metal was rinsed with high-pressure cold water, followed by immersion in boiling water. It was then unloaded and put directly onto the roller conveyor, on which were placed dollies shaped to fit each individual piece of metal. The metal itself was handled with a block and tackle hung from an overhead rail, so that after being washed the metal was kept free from contact with the operator's dirty hands or gloves, as much as possible. One operator could wash three complete jobs in an hour with this system.

Prime Coating and Finishing Sheet Metal Parts

The pieces were then rolled along the conveyor into the prime-coat booth. The first satisfactory primer we used was an old type oxide primer. After application, the sheet metal was rolled around on a conveyor into the oven and force dried at 180° F. It was then rolled out and sanded with No. 320 sandpaper, and then moved into the finish booths where it received a double coat of synthetic enamel. It was then put back into the oven to force dry the entire finish at 180°.

This primer answered our purpose until we started to receive more and more orders for different colors. Orders would call for one job with black fenders and red hood; the next job all red; the next all white. In addition to that, our white and cream would bleed. These pieces had to move down the line in their exact order, despite the different colors. Since we sold custom trucks for almost immediate delivery, we did not have much time and we had to arrange our setup so that we could change colors immediately from piece to piece.

About this time, our supplier introduced us to zinc chromate primers. These were the answer to a production man's prayer. In fact they were so good that it is surprising to me that more manufacturers were not using this material

THE PRIMER THAT *FLOWS BACKWARD*

O'Brien's Gray Primer 7062 eliminates beading on the edge of the object being dipped. This unusual baking primer actually "flows backward" after draining, levelling out to a smooth, clean surface. A stand-out performer under lacquer, synthetic enamels and government specification finishes. Non-skinning, non-settling, extremely stable in the dip tank. Applied film is flexible, durable and salt-resistant. Write us for this primer's outstanding record.

O'BRIEN VARNISH COMPANY, SOUTH BEND 21, INDIANA

O'BRIEN
INDUSTRIAL FINISHES
SINCE 1875

NOT THE MOST – JUST THE BEST

before the war. We rearranged our conveyor lines, as this material did not need to be baked. It sprayed smoothly and cleanly. Adhesion was wonderful and we eliminated the sanding operation between the prime booth and finish booth.

How We Arranged to Paint Custom Trucks in Colors

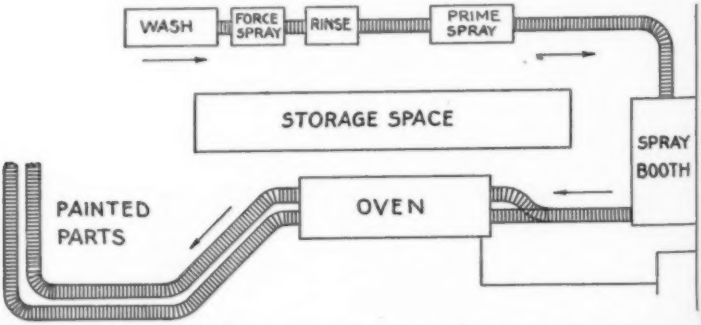
We found that three colors, red, maroon and cream, provided satisfactory bases for whatever color we used. Under a setup of this kind it was impossible to use either a paint-circulating system, or even 5 or 10-gallon containers. We installed extra syphon-cup guns with snap connections in all our spray booths, and put on an extra man to take care of cleaning spray guns and supplying a clean gun for each change of color. In addition to this, we purchased all of our finishing colors in one-gallon containers, and we put in a complete line of tinting colors. In this way we were able to match colors to the customer's desire. A man in the stock room matched and reduced all colors for delivery to the spray booths.

This may have seemed expensive, but it worked exceptionally fast; and we could apply as many different colors as we wanted. We found that customers were more than willing to pay the little extra cost for this accommodation. Furthermore, this elimination of baking the primers gave us one continuous flow of metal from tank to baking oven in any desired color.

I cannot speak too highly of the versatility and excellent properties of zinc chromate primer. I have found it adaptable to many different phases of metal finishing. We also kept complete files on the paint we used for customers' trucks, in order to service these trucks with sheet metal through our service department. The sales department also had the record, in case of a re-order by the customer.

Truck Cabs; Cleaning and Prime Coating

The cabs were first washed with ordinary solvents and pushed around on wheeled dollies. During this time our routine was to prime in the morning for the next day's finishing, and then in the afternoon we finished the cabs that had been primed the day before with lacquer. These jobs were not very good because the washing was bad,



Layout of our production setup for cleaning, painting and drying sheet-metal parts, as we finally arranged it to suit our work and conditions.

ZAPON

DURANITE

The Production Finish

For maximum protection of metals and for ease and economy of application there is no better finish than DURANITE. It's a plastic base high-speed production finish that comes in both clears and colors for spray, dip or roller-coat application—for infra-red or oven baking.

Many grades available NOW

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ATLAS POWDER COMPANY

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SPECIALIZED PRODUCTION FINISHES . . . *Doing Tomorrow's Job Today!*

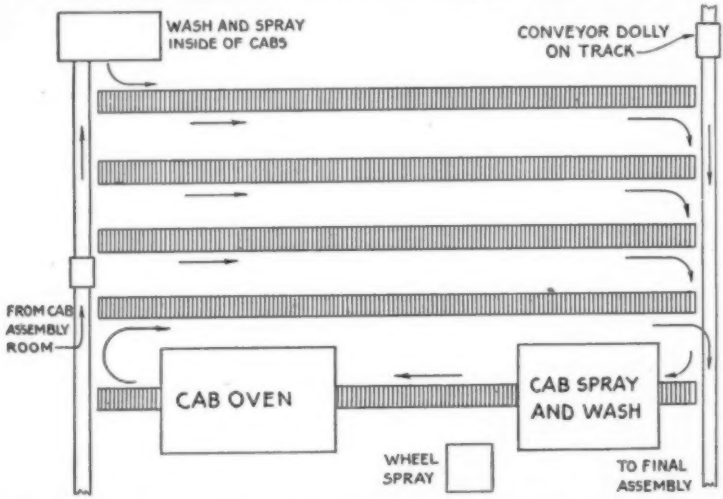
and so was the adhesion. We laid out a complete conveyor system for the cab department.

Next we contacted various suppliers of cleaning compounds and fluids, that would give a fast cold wash. We finally located a washing compound which, when reduced with equal parts of cold water and applied with a brush, not only dissolved the grease but also etched the metal and left it with a nice "tooth" for the primer coat.

The cleaning problem settled, we routed our cabs from the cab assembly department into the inside-cab finish booth. Here they were washed inside and sprayed with a light coat of zinc chromate primer, followed with a coat of air-dry wrinkle green. They were then run onto the stock conveyor tracks, where they were washed on the outside and then rolled into the large combination prime and finish booth.

Here again our zinc chromate served us well. After sanding the bare metal with No. 180 sandpaper and washing the cabs, we applied our primer which was reduced with a fast-drying solvent. We followed this almost immediately with finishing coats of synthetic enamel. The cabs were then rolled into a force-dry oven at 180° F., and the wrinkle, primer and finish coats were all baked at one time.

In case of 2-tone cab jobs, we applied the lower or top color and ran the cab through the oven and back down the delivery track to the booth, where the first color was masked and the second color was sprayed. Then the masking



The layout of our department for finishing cabs. The insides of cabs are sprayed with air-dry green wrinkle in the spray booth shown in upper left. Cabs then proceed on to the stock conveyor tracks from which operators get them for outside painting. The outside of each cab is washed, and chromate primer is applied, followed almost immediately by finish coats. They are then pushed into the oven and force-dried at 180° F.

YOUR POSTWAR BUSINESS

May Depend On A War-Time Development Like This!

Here you see one of many shell-can finishing systems built by KOCH for leading ammunition makers. Sealed metal boxes go through 13 distinct finishing operations on this conveyorized production line, which incorporates both convection type and infra-red ovens.

When you consider and analyze the important job done by these finishing systems—applying coatings that give perfect protection against any and all destructive and corrosive elements . . . at war-hungry speed, with a minimum of rejects—then you can appreciate the DEPENDABILITY and PRECISION ACCURACY OF KOCH ENGINEERED EQUIPMENT.

PROFIT FROM THIS VALUABLE EXPERIENCE

GEORGE **KOCH** SONS, INC.
INDUSTRIAL EQUIPMENT
EVANSVILLE 4, INDIANA

Whether or not your postwar products need ALL of these extraordinary protective measures you'll still want reliable on-the-line production.

Make sure you GET these benefits! Take advantage of KOCH's valuable years of *war-time* and *pre-war* experience in developing equipment for baking and drying operations. Phone, wire or write.

was removed and the cab made its second trip through the oven and onto the final assembly tracks.

Our Setup for Painting Wheels of Trucks

Our wheel finishing was fairly easy to handle. Wheels were delivered to us coated with a neutral primer. Our stock department put them into piles of seven, which was the number for each truck. Our wheel sprayer picked them up on specially constructed factory trucks and took them to the spray booth. This booth had a saddle sunk to floor level, underneath which was a shaft controlled by compressed air. The wheels were then rolled one at a time, from the truck onto the saddle which the operator raised to correct spraying height by means of a foot valve.

Spray Painting the Chassis for Motor Trucks

Our chassis spray booths were located in the exact center of our production line. The chassis were sent down the line on steel-wheeled dollies and through the chassis spray booths into the final assembly line. Up to this time we had used lacquer as a finishing medium. To spray underneath the chassis the men pushed themselves around on small creepers, such as are used by garage mechanics. This wasn't satisfactory, as the men became covered with spray dust and we had trouble pulling the chassis out of the booths because of accumulations of paint on the floor.

We placed heavy roller conveyors through the center of each booth. They were high enough to allow men to reach under them while spraying the chassis. These were extended to a considerable length on either side of the booths, in order to incline the conveyors gradually and enable the chassis to be pushed from floor level without much effort.

Our washing problems in this department were not too bad, as our frame rails and cross members were delivered from the manufacturers to the assembly line, complete with prime coat. The only cleaning we had was such things as propellor shafts and small assembly parts, and these were washed with the same compound as our cabs.

These were the only booths in which we used 5-gallon containers. These were necessary, as it required the larger part of a 5-gallon container to spray a chassis. Our color problem was not too great, as chassis were mostly red or black, regardless of the color of the upper structure and wheels.

When we changed the department over to using synthetics, we purchased the same type of material that we used for finishing. There was a slight change in the formulation, so that it would set dust free in a few minutes—from the time the chassis left the spray booth until it reached the first station on the assembly line. This material was received in drum lots. When we did get jobs that called for colored chassis to match the metal, we used the same material that had been used on the metal and added fast-drying solvents to hasten the drying period.

How We Arranged to Paint Different Truck Bodies

Our body department had to be built next to the body assembly department. Here we had different types and sizes — wooden-stake bodies, steel-paneled bodies, alumimum and prestwood-panel bodies.

We placed an indirect exhaust booth at the end of our 80x120-ft. paint room. This booth was large

BETTER COATINGS

METAL PRIMER 12323

has become

The Keystone in Metal Finishing

A Metal Primer so Versatile . . . so Economical that it has been adopted by many leading metal fabricators and finishers as their only Prime Coat.

It may be applied by:—Brush, Dip, or Spray. Air Dries in just a few minutes—or—may be baked at varying temperatures for brief periods of time. Succeeding Lacquer or Enamel Coats may be applied almost instantly.

Excellent Rust Inhibiting properties. Salt Spray resistance and excellent adhesion on flexible or rigid parts.

Developed to meet War time requirements, this product will perform the same service in the Peace to come.

We solicit your inquiries covering technical data.

BECKWITH-CHANDLER CO.,
NEWARK, N. J.

enough and high enough to take the largest bodies. They were unloaded onto special steel-wheeled trucks and circled the entire room during the different paint processes. One was wheeled into the booth and one was wheeled out, as each one was made ready for the spray coats.

The wooden stake jobs were first brush-primed with lead, air dried and sanded; then followed a glaze which was knifed on. They were again sanded and finished with synthetic enamel coats. The prestwood bodies were spray primed with lead, sanded, and sprayed with two heavy coats of synthetic-type surfacer which we block-sanded almost down to the primer in order to overcome the patchy appearance common to this type of material. These bodies were then finished with synthetic enamel which was used fairly heavy to give good gloss and depth.

Our aluminum and galvanized-steel bodies were washed with the same compound that was used on the cabs, and this was followed with an acetic acid bath for the galvanized bodies. We were particularly careful with the aluminum and steel bodies. We primed all moldings on the inside and prime-coated the places where the moldings were going to be placed on the body. These surfaces were prime-coated with zinc chromate primer before being put in place, in order to counteract rust and corrosion. These bodies were then primed with zinc chromate and also finished with synthetic enamel.

We always found it advisable, in the case of large bodies, to have one spray man follow right behind another, in order to keep the surface wet and insure a proper flow of material. After the finish coating had dried overnight, we moved the bodies directly into the body mounting department, where they were touched up after being mounted.

Synthetics have accomplished a wonderful job for this company in the last few years. We are eagerly awaiting the end of the war so that we may put into practice more improvements in our finishing system, which we have already planned and which will give our customers an even better finish.

Two New Sales Managers for 3-M Company

Robert R. Miller has been promoted to sales manager, industrial trades, and W. J. Streicher to sales manager, distributor trades, in the Cincinnati territory for Minnesota Mining & Mfg. Co.

Mr. Streicher, a salesman in the Indiana territory at the time of his promotion, has been with 3-M company for 17 years. He will assume responsibility for all salesmen handling abrasives and related items in that part of the Cincinnati division included in the states of W. Va., Ky., Tenn., Ala., and Ga.

Mr. Miller, a 3-M employee for 21 years and recently a salesman in Ohio, will remain in that territory in his new supervisory capacity.

Devoe & Raynolds Adds Three New Directors

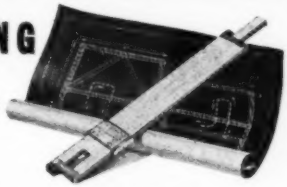
Following a Devoe & Raynolds Co., Inc., Directors' Meeting on June 4th, authorizing the addition of three new directors, Clarence W. Slocum, Roy A. Plumb and Eric W. Peniston were elected.

Clarence W. Slocum is well known in the paint industry, having served in the Federal Government alternately as consultant and associate price executive of the Chemical Branch of OPA. He is President of Beckwith-Chandler Co., manufacturers of railroad and industrial product finishes. The Beckwith-Chandler Co. was acquired by Devoe and Raynolds Co. in April, 1945.

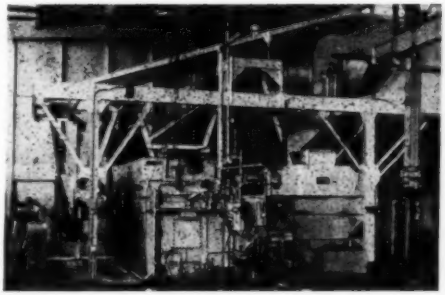
Roy A. Plumb is President of Truscon Laboratories, Inc., which became affiliated with Devoe & Raynolds Co. in May, 1945. Mr. Plumb is well known in the industry because of special contributions in the way of compounds for waterproofing concrete; also for new developments in the field of rust-inhibitive paints for structural steel.

Eric W. Peniston is presently a Lieutenant in the U. S. Navy.

OVEN ENGINEERING NEWS



Six Airfields per Month Roll Through This IOE Automatic Finishing System



Speed—A new speed record in the finishing of steel landing mat sections for portable airfields has been set by this **IOE** system in the Niles, Ohio plant of the National Gypsum Company. Enough steel sections are turned out each month to make six complete landing fields for American planes in the far places of the world.

Efficiency—Mat sections, loaded on a crossbar conveyer, are continuously and automatically vapor degreased, paint dipped, drained, baked, cooled and unloaded directly onto a conveyer leading to a siding. Quality of finish meets the most severe Government specifications.

Economy—The system saves enough money to pay for itself in a matter of months. Attendant labor has been reduced to one fourth of that previously required; scrap rejection has been cut to an inconsequential portion of total production; in-process time has been decreased from hours to minutes, and fuel consumption has been reduced to one fourth of the previous input.

Safety—A complete exhaust system for the paint tank reduces fume hazards to opertors, and full explosion-proof equipment (not only on the dip tank but throughout the system) assures safe operation at all times.

Post-War Use — This finishing system will be ready for post-war production — *without construction change* — the day that war contracts are terminated. It can be used for finishing metal lath, pre-fabricated housing units, steel specialties, etc.

Blueprint for Industry
Part II

This unusual engineering book on high-production convection heated ovens is again available. Send for your FREE copy.

(This is No. 15 of a series. Reprints of previous advertisements will be sent free upon request.)

ENGINEERING VERSATILITY

THE INDUSTRIAL *Oven Engineering* COMPANY

11821 DETROIT AVE, CLEVELAND 2, OHIO

Engineering Representatives in Principal Industrial Areas

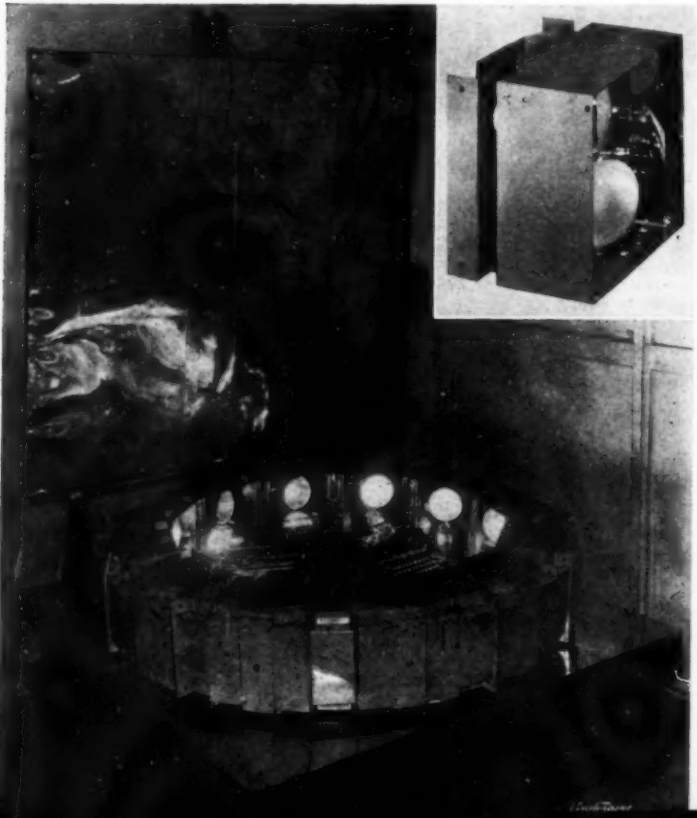
★ ASSOCIATED COMPANY: JAMES DAY MACHINERY LTD., LONDON, W. 1, ENGLAND ★

An Infra-Red Oven for Non-Moving Products

BY WILLIAM J. MISKELLA
Chief Engineer
Infra-Red Engineers & Designers

SEVERAL months ago we cooperated with the U. S. Government in the development of an infra-red oven that could be used to apply wrinkle finish to typewriters. As every finisher knows, wrin-

Fig. 1—The lid of this ring-shaped infra-red oven is raised to reveal the exact arrangement of heat lamps and two of the four typewriters positioned therein. Inset shows close-up of single unit containing two heat lamps.



Building for the Future—

Use dependable Walker Finishes

WALKER protective and decorative coatings have helped many manufacturers solve their finishing production problems.

All Walker finishes have been developed and formulated for specific purposes, in our laboratories and further proved by actual field service. Our line of primers, surfacers, lacquers, wrinkles, synthetics and special coatings will supply you with dependable protective and decorative coatings.

"Call on Walker"

H. V. WALKER CO.

Elizabeth, New Jersey

MODERN PRODUCTION FINISHES

kle finish is one of the most difficult coating materials to handle. We received a crude specification covering the installation desired. Eventually we developed a model such as that illustrated in Fig. 1.

This oven is made up of a ring of 12 angularly directed, insulated-reflective heat units such as that illustrated in the inset in Fig. 1. A cross-section of one unit is shown in the inset in Fig. 2. Here you will notice that the insulation back of the reflective face of the unit separates the heating portion of the oven from the electrical equipment. The electrical equipment is also separated by an air space in which the sockets for the lamps may be seen when one looks directly into this opening.

Referring again to Fig. 1, which shows the lamps lighted and the cover open, you see two of the four typewriters that are in this particular oven for processing.

The procedure is to spray the work in a spray booth near by, set the articles in this tub-type oven, and turn on all the lamps for approximately five minutes. At the end of five minutes, the toggle switches, which are a part of each individual unit, may be used to cut out one third of the units; and at the end of another five minutes, the other toggle switches may be used to cut out another one third, leaving one third or four of the 12 units in operation to finish the job.

Insulated Infra-Red Oven Confines Heat Within Zone

There are two outstanding lessons to be learned from this installation. First, it is surrounded by insulation the same as a convection oven. *The top and the floor are insulated, as well as the ring of heat units surrounding the work in process,* therefore there is no loss from radiation such as would occur if the infra-red units were not insulated.

The other lesson is the marvelous uniformity of the wrinkle finish obtained with work in the oven being motionless. *The success of this installation is largely due to the tangential direction of the heat rays which "billiard" back and forth within the oven, which is entirely lined with reflective material.* Chromium plating is used in this particular oven.

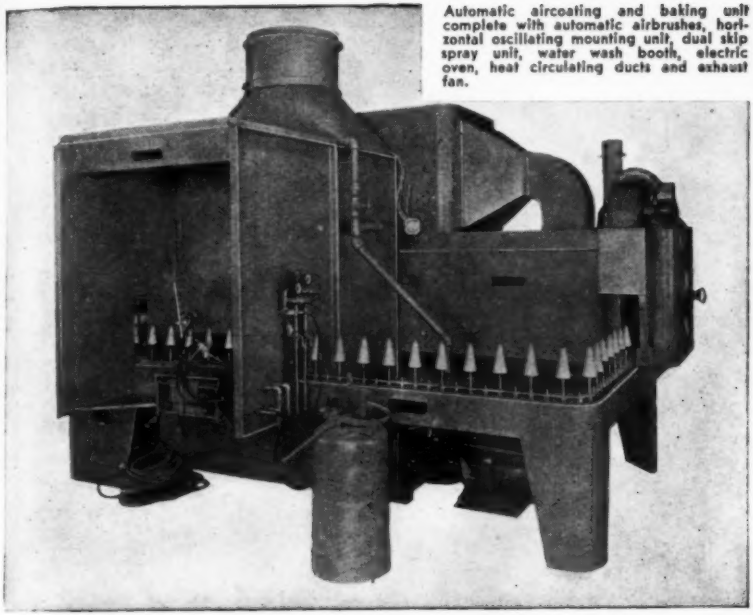
Another point should be mentioned: *It makes no difference how close the work happens to come to the lamps in this oven.* No harm is done, and that means full utilization of the space within the interior for doing work.

An exterior view of the closed oven is shown in Fig. 2, which also shows the counter-balance weight that enables the operator to raise and lower the cover with ease.

Equipment is Versatile and Offers Many Possibilities

This particular type of unit has a field of small shops where it is the custom to apply lacquer-type finishes because of the opportunity to have them air-dry overnight. Under this new arrangement it will be possible for that particular operator to bake a finish on his work, using synthetic enamels instead of lacquer. He will be able to ship any of his finished articles within 15 or 20 minutes after they have been taken out of the oven and allowed to cool to room temperature.

It is evident that the theory that work must move within an infra-red oven is very much upset by this particularly interesting and highly successful installation. There are many small organizations who send work out to have it finished be-



Automatic aircoating and baking unit complete with automatic airbrushes, horizontal oscillating mounting unit, dual skip spray unit, water wash booth, electric oven, heat circulating ducts and exhaust fan.

Your Patience Speeds Victory

THE DEMANDS of our Armed Services for greater finishing speed and automatic air painting have resulted in many improvements in Paasche equipment. An addition to our factory has increased our manufacturing facilities. These improvements and larger space will mean increased satisfaction to more customers when all our equipment is available for peace time uses. For the duration we must speed delivery of vital tools to help win the war.

If our service to you has not been as prompt as you wished it, we assure you we are filling your orders as fast as conditions permit, and are doing our utmost to meet delivery dates.

By giving priority to the needs of our fighting forces we are hastening the day of victory.

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1917 Diversey Parkway, Chicago 14, Illinois
Offices in all principal cities

PAASCHE AIRBRUSH (CANADA) LTD.
110 Elm Street, Toronto, Canada

Paasche AIRPAINTING EQUIPMENT

Two Ways to Finish the Job Faster—Buy EXTRA War Bonds. Airpaint with Paasche.

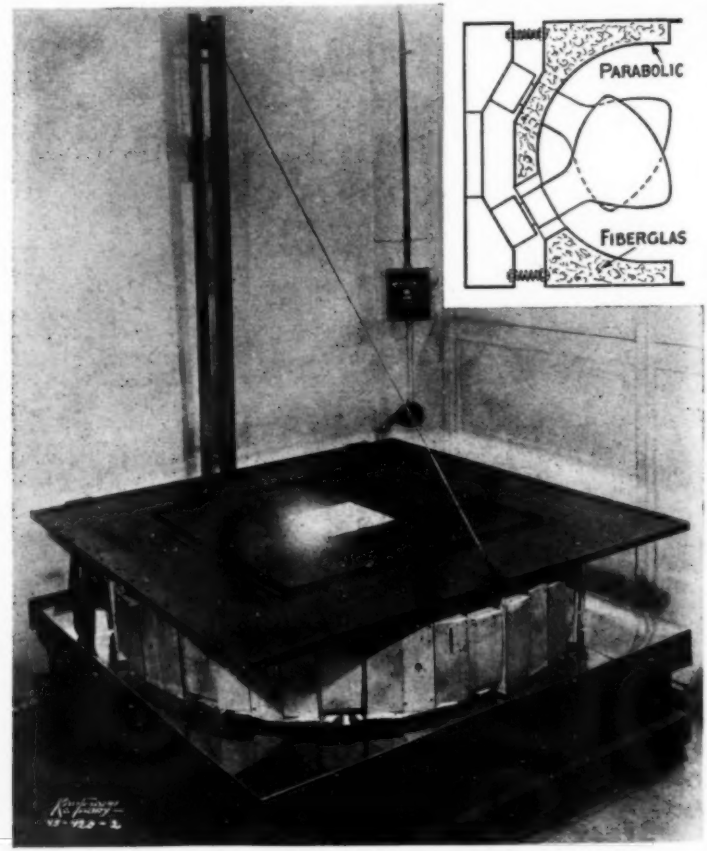
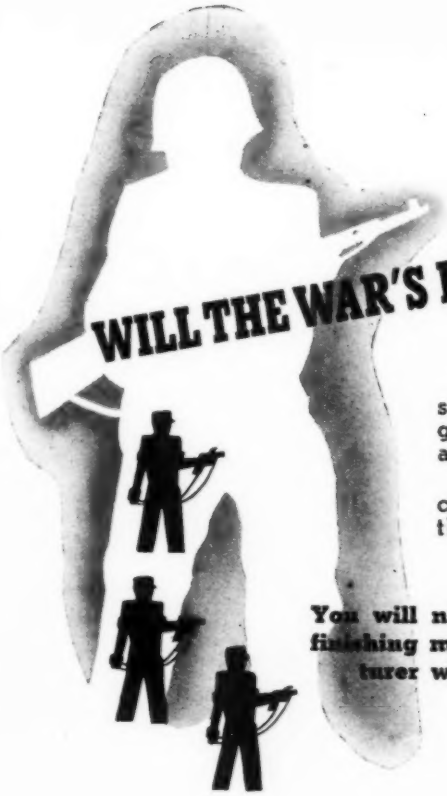


Fig. 2—Same view as Fig. 1, except that here the lid is closed. Inset shows cross-sectional drawing of 2-lamp unit. Notice insulation back of reflector.

cause of the need of a baked finish, but now the opportunity for them to make a further saving presents itself in this new idea.

While the equipment illustrated and described here was made for the purpose of processing typewriters, it is evident that this tub design may be carried into larger dimensions. The one illustrated here is 11-in. deep, but other standards now available are either 22-in. or 33-in. deep, the latter being two or three times the size of this single-story unit. With a toggle switch for each pair of lamps, it



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several years of the greatest peace-time activity ever known?

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You will need the help of a finishing materials manufacturer whose products are

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- ***reliable***
- ***practical***

• The impact of war has made it necessary for us to use new raw materials—new formulations. These lessons, put into practice now, will have greater value for our customers and for ourselves in the post-war period, in improved products and greater service.

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manufacturers—lacquers, fillers, stains, enamels, paints

Chicago 14

is evident that most any desired setting may be readily arranged.

It is also possible to use lamps which are equipped with sockets to direct the heat toward the center of the circle or, in other words, diametrically instead of tangentially.

You do not have to stretch your imagination very far to recognize other possible uses for these interesting ring formations of standardized infra-red insulated reflective units. There is practically no limit to the diameter of the interior, and therefore no limit to the size of the job you might wish to bake with this form of oven. The work may be placed on a reflective plate on the floor, and the oven brought to it by means of a counter-balance or with a crane if that is desirable.

Also, it is possible to utilize a number of these continuous ring assemblies in such a way that the work will be carried horizontally by means of a conveyor through them. In other words they can be mounted on edge and placed one next to the other instead of being laid one on top of the other, as described in this article.

Most of the ordinary infra-red installations consist of two vertical side banks, with short angular wings top and bottom; little if any attention is paid toward enclosing the entire configuration. Not all jobs that are processed need to be given consideration for any smoke or fumes that may arise. In fact, the production must become quite large before one needs to include any ventilation whatever.

Second "E" Star for Lea

The Lea Mfg. Co., Waterbury, Conn., specialists in methods and compositions for burring, polishing and buffing, has been awarded its second Army-Navy "E" Star for "maintaining a fine record of production".

T. S. Taylor Affiliated With Testing Company

The United States Testing Co., Inc., with main offices and laboratories in Hoboken, N. J., announces that T. Smith Taylor is a recent addition to its staff of engineers. Mr. Taylor is well known in testing, research and development circles, being active in many phases of American Society for Testing Materials' functions on electrical insulating and plastic materials.

Chadeloid Corp. Gets Patents of Finishing Materials

Colonel H. A. Toulmin, Jr., chairman of the board of Commonwealth Engineering, of Dayton, Ohio, announces the acquisition by that company of 50 patents of Chadeloid Chemical Co., New York City, dealing with wood stains, opalescent lacquers and varnish removers. Many of the inventions of the late Carleton Ellis are covered by the patents transferred.

A new company, the Chadeloid Corp., Dayton, Ohio, has been formed to acquire these properties which are of particular interest to the woodworking and medal working industries. The new corporation has also acquired the licenses already existing between its predecessor and leaders of the industrial finishing industry representing many of the major units in the paint and varnish field.

The Chadeloid Corp. will utilize the extensive industrial finishing laboratories of Commonwealth and will provide complete technical services to the industrial finishing industry, as well as to the woodworking and metal working trades which use these finishes. A comprehensive research program has been undertaken to further new developments for the benefit of industry.

Any member of the industrial finishing industry can secure a license of these patents by a new low rate of royalty, as it is the purpose of the Chadeloid Corp. to open the advantages of these patents widely to the entire woodworking and metal working trades.

The new corporation will enter into an extensive advertising and sales promotion program including the publication of technical bulletins based upon its research and fundamental work.

Commonwealth Engineering owns New Wrinkle, Inc., which undertook the mass licensing and merchandising of wrinkle finishes about six years ago and since that time has had wide success, now having some 200 licensees consisting of practically all of the members of the industrial finish industry in the United States and many leading corporations abroad.

WITH A

RECONVERSION FINISHING PROBLEM

Murphy has a record of consistent leadership in the creation of new and better coatings—a record that commends itself to any executive with a reconversion finishing problem.

For example, Murphy was the first to produce the remarkable moisture-repellant sealers, used in the late '20's on the famous Fokker plywood planes, and now widely used on modern aircraft . . The first permanent non-grain-raising stains, were also introduced by Murphy . . The modern plastic coating, adopted first by Steinway for pianos, was another Murphy creation . . Fungus-resistant coatings, extensively employed to protect war equipment, clear stain-proof lacquers for linings of food cans, opalescent auto finishes, etc. were likewise *Murphy Firsts*. During the present war, this organization has produced over 2,000 individualized finishes for the Armed Forces and essential civilian production.

Today Murphy also has the benefit of extensive research carried on by the splendidly equipped laboratories of the Interchemical Corporation.

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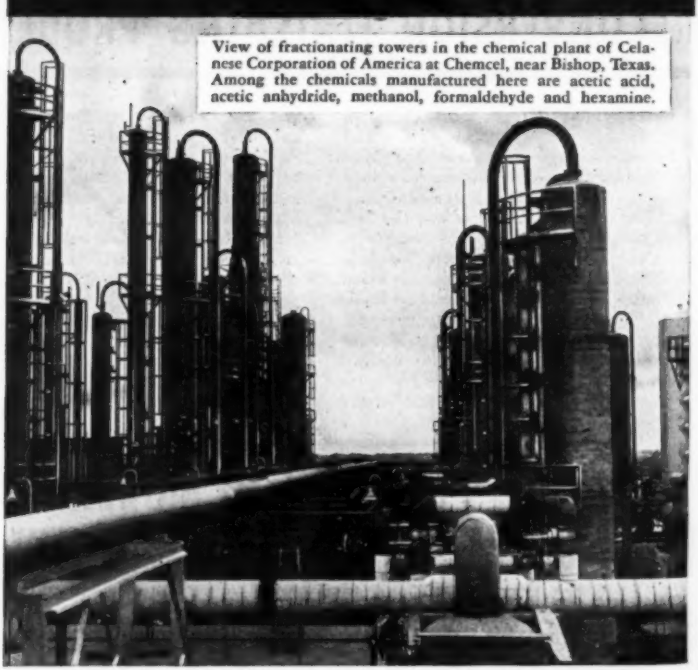

View of fractionating towers in the chemical plant of Celanese Corporation of America at Chemcel, near Bishop, Texas. Among the chemicals manufactured here are acetic acid, acetic anhydride, methanol, formaldehyde and hexamine.

CELANESE CORPORATION OF AMERICA

The proof of Celanese research is in expanded production...

THE PROGRESS of Celanese research in synthetics—the ever-increasing search for new materials precisely suited to advanced industrial needs—is demonstrated by the latest addition to Celanese production facilities, a new chemical plant near Bishop, Texas.

This modern plant, where some units are already beginning operation, is close to important sources of petroleum and natural gas, the major raw materials for synthetics. This expansion in the important hydrocarbon field will greatly increase the potentials of Celanese research and production.

Acetaldehyde, acetone, formaldehyde and methanol are among the base chemicals that will be produced by the most modern methods. Conversion of these basic chemicals into various advanced compounds can serve a broad range of important industrial uses.

For instance, resins, adhesives, lacquers and plasticizers for the ever-growing plastics and electronics fields —for synthetic rubber, paper products, packaging, textiles and many others. In addition—preservatives, essential oils, dyes, specialized solvents and cleaning compounds, emulsions of many types, advanced chemicals for the drug industry.

In these applications Celanese research will meet the demands of chemical engineers with the same precision demonstrated in those versatile products, the Celanese organic phosphates —Lindol*, Lindol E.P., Lindol M.P., Celluflex* and Cellulube*.

It is to individual requirements of industry that Celanese research is especially devoted. Inquiries are welcome in terms of specific objectives. Celanese Chemical Corporation, a division of Celanese Corporation of America, 180 Madison Avenue, New York 16, N. Y.

*Reg. U. S. Pat. Off.

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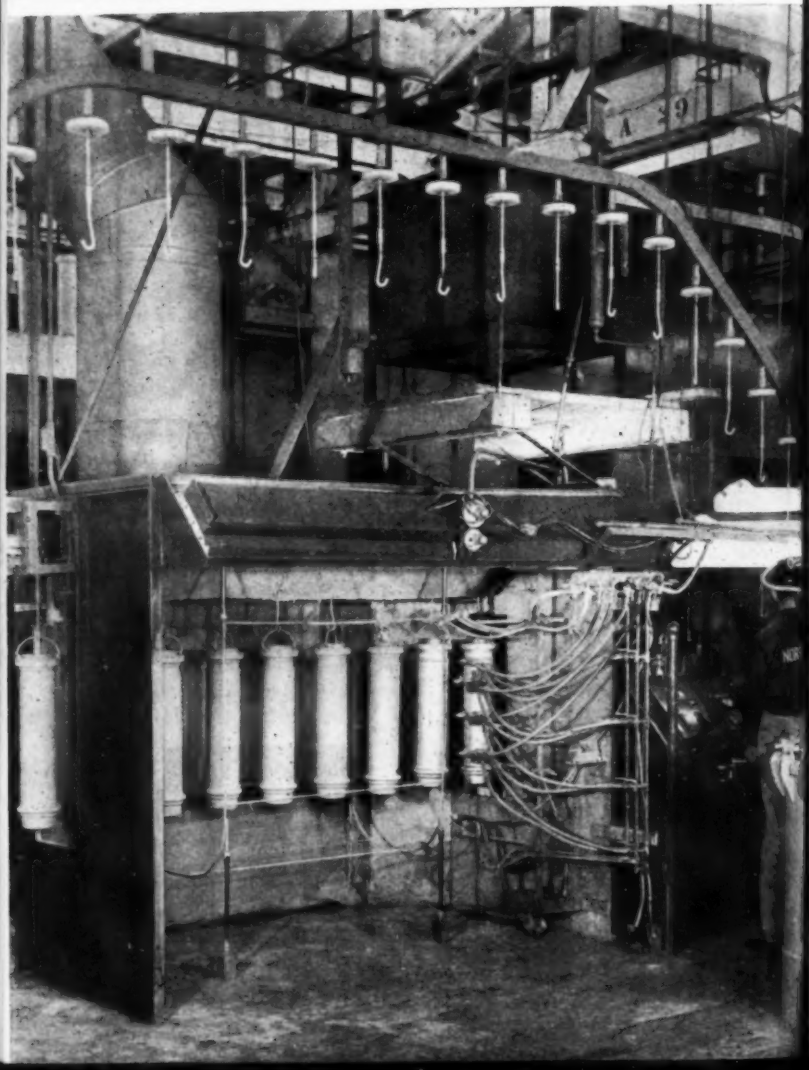


...ing of Cartridge Tanks

BY FRED M. BURT

THE NORRIS Stamping & Mfg. Co., of Los Angeles, Calif., has developed some extraordinarily efficient techniques in its war production operations. As a specialist in metal stamping, drawing and allied work this firm has produced more than 6,000,000 steel shell cases (3-in. principally) plus large quantities of 3-in. mortar projectiles, 75-mm. steel shell cases and 4.7, 5 and 6-in., brass shell cases. In addition to manufacturing shell cases the Norris Company also makes automobile license plates.

One of the most advanced manufacturing techniques employed by the company is in the spray painting of cartridge tanks. In fact every operation in the production of these units is interesting and efficient. The flow is fast and continuous from the first to last mechanized operation.

How Cartridge Tanks Are Formed by Drawing

Cartridge tanks are aluminum clyinders 5-in. in diameter and 28-in. long. They are drawn from flat aluminum discs—the form in which this raw material is supplied to the manufacturer. First there are four successive and progressive drawing operations on a Norris-designed press. So far as the writer can learn, Norris is the only manufacturer that draws these tanks in one piece. Other concerns that produce the same unit, fabricate it in two sections and then weld the two together.

Next there are three semi-automatic ironing operations performed continuously; then the bottom flange is bulged and, on the other end, a flange is spun to hold the cover ring.

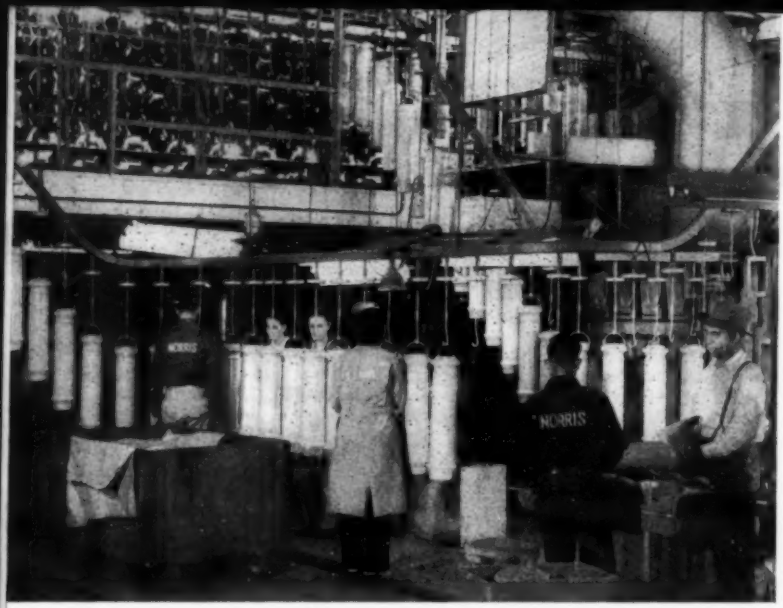
Washing, Rinsing, Drying Performed Automatically

Tanks are hung to a crossbar conveyor which carries them through a washing, rinsing, and drying process. They are loaded and unloaded at the same end of the machine. Six of the clyinders are hung in a row, crosswise, on each workholder. After the conveyor chains pass over the upper unloading-end sprockets, the workholders drop vertically; and as one operator removes washed tanks, another one fills the workholder which then enters the lower part of the machine for another trip.

At the same time, in a parallel position nearby, the cartridge case covers are similarly washed in another smaller machine, with each workholder carrying 24 covers.

After being unloaded, the tanks and covers converge in an area between the washing machines. Here the cover-ring gaskets are inserted in the open end of the tanks; then they are tested for tightness. A handle is attached to the cover

Fig. 1 (Opposite Page)—The interior of this spray booth, through which hanging cartridge tanks are traveling by overhead conveyor, is electrically charged so that sprayed paint particles become charged and quickly attach themselves to the surfaces of cartridge tanks, which are of opposite polarity, electrically.



This picture shows the ascending line of cartridge tanks at upper center. They move to the right and then double back through the infra-red drying section. At the left they can be seen returning from the cooling area and moving past the inspectors, to be taken off the line and capped at the right.

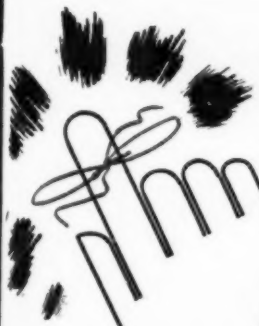
ring; then the ring is inserted in the tank against the gasket and made fast with a turn. All of these operations are continuous, fast and synchronized. This is the chief factor that lends importance to the story of this production. Incidentally this same general technique of drawing, handling and coating will have many and varied applications in peacetime.

When the tightness of the cover has been tested, the units roll down a gentle slope to the end of the spray-painting line — just to the right of the operator shown at lower right in Fig. 1. In this picture, by the way, part of the metal washing machine can be seen in the background; in the upper left is a duct above an exhaust fan which pulls fumes and waste spray from the booth. (Note: To enable the photographer to shoot a clear picture of the booth interior, the guard fence was temporarily removed from the front of the spray booth.)

Tanks Revolve as They Travel Through Spray

Under the overhead chain conveyor that passes through the spray booth, tanks are hung from swiveled hooks placed 12-in. apart. Just below the level at which the hooks are attached to the conveyor chain there is a moving belt which engages the sides of the long hooks and rotates them while they are passing through the spray booth. By this arrangement the tanks hanging from hooks are caused to rotate about 60-r.p.m. while they travel through the spray booth at the rate of 12-ft. per minute.

Within the spray booth a highly charged field of static electricity is



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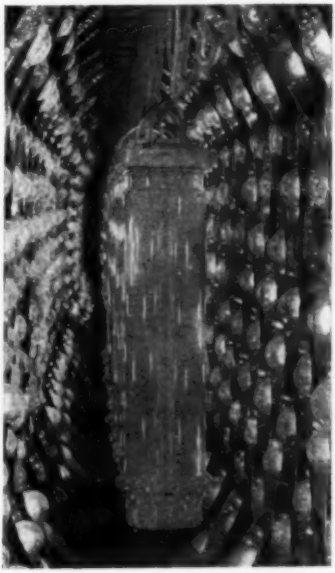
created by electrostatic equipment furnished by an Indianapolis, Ind., firm. The object of using this high-voltage (but very low amperage) electricity is to give the minute particles of sprayed paint a small charge of static electricity so they will be quickly and positively attracted to the surfaces being spray painted. These surfaces are charged with the opposite polarity. The scientific fact that unlike charges attract each other, results in practically all of the sprayed paint being deposited on the work, even though some parts are so positioned that the spray guns do not point directly toward them. As a result there is a minimum wastage of overspray and there are no skipped places on the work. Every bit of surface is covered and covered uniformly.

Spraying in Field of Static Electricity

The light metal framework located inside the spray booth is electrically insulated from the ground and acts as a support for vertically and horizontally stretched fine wires which constitute the electrode system of the electrostatic field. These wires are charged to a static potential of 100,000 volts. As the tanks, which are electrically grounded through their supporting hooks to the conveyor, pass opposite this electrode system, an electrostatic field is set up between the electrode and the tanks.

Six automatic spray guns, shown at the right in Fig. 1, atomize the coating material. Atomization is accomplished by using filtered air and regulating its pressure to 30-lbs. per square inch. Regulators are in the control cabinet shown in front of the operator, at right in Fig. 1. This same cabinet contains precision regulators which maintain the required low fluid pressure of 3 to 4-lbs. per square inch on the coating material contained in pressure tanks at the right.



After spray-painting, the cartridge tanks go through an infra-red drying tunnel which consists of 800 lamps each rated at 375 watts.

In this operation cylinderical cartridge tanks are coated uniformly with one coat of Navy specification gray cartridge-case enamel. The atomized material sprayed into the electrostatic field acquires a charge which is the same electrical sign as the electrode and of opposite sign to the tanks. Naturally sprayed paint is repelled from the electrode and attracted to the tanks being painted. In appearance the spray has the form of a light fog which entirely surrounds and moves toward the tank surfaces.

Army-Navy "E" Day, in recognition of outstanding performance in the production of airplane smoke tanks, was observed May 26th at the Empire Stove Company. Volume production of airplane smoke tanks —to lay down a protective, artificial fog as fast as a plane can fly— was the order. Chemical Warfare Service needed smoke tanks— quickly and in volume—Empire delivered! The finishing room couldn't be a "bottleneck"—and wasn't!

Two coats in 35 minutes—ready to ship—was Berry Brothers' answer to the finishing room problem. Bonderized tanks were sprayed with Berry Brothers' ES 680#101 Primer —given 5 minutes infrared baking —conveyed to another booth, to receive a coat of ES 680 Blue Gray Lusterless Enamel, followed by another 5-minute infrared baking. And production really rolled!

This same Berry Brothers' "know how" can help streamline your finishing system, now and postwar. Let a Berry Brothers' industrial representative analyze your finishing system!

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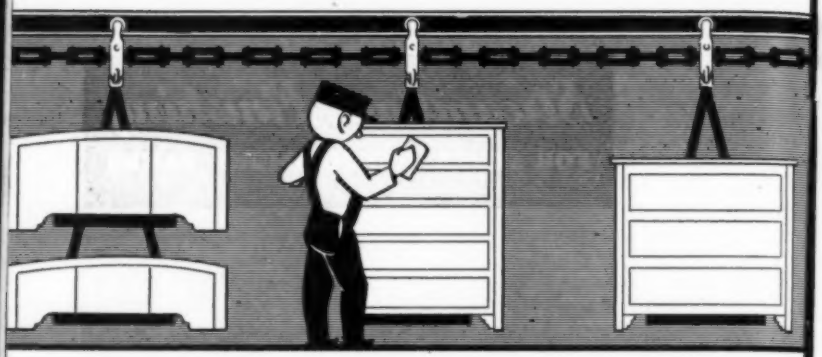


PLANNING YOUR FINISHING ROOM

Conveyor System

BY E. S. DAVIDSON

MUCH has been written about conveyor systems in furniture plants, their effectiveness in decreasing direct labor costs, how they reduce the floor space necessary for finishing room operations, how they lend themselves to good housekeeping, how they offer the only means to predetermined production schedules, and their many other advantages. No installation, to my knowledge, however, has been approached from its inception with a clean sheet, so to speak.

Each installation has had too many restrictions to allow a good designing engineer the freedom necessary to lay out and design a finishing room that would take advantage of the many innovations that have been brought to light in recent years, and the correct application of the mechanical equipment.

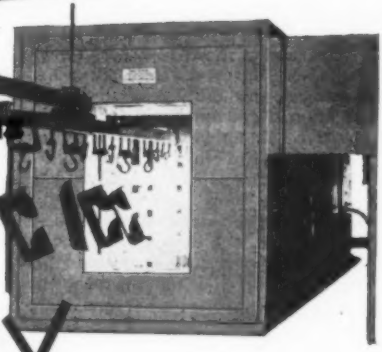
Because most furniture plants have expanded from small operations to varying degrees of larger operations, without any long term expansion program, the buildings that are available to house the finishing room are, in most cases, far from conducive to good sound plant layout. Additions to plants have been through necessity, and little thought has been given to coordinated department layout. In finishing rooms and, in fact, in all other departments, actual physical operations have been restricted, hampered and confined to the housing facilities, either available or permissible by real estate limitations.

Why Some Conveyor Systems Retard Full Efficiency

The need of management, either actual or through shortsightedness, has often held initial costs of capital investment to a minimum, thereby never realizing to the fullest extent the potential savings of so-called "streamline production." There have been times when a con-

The $64 Question!

INFRA-RED or CONVECTION OVENS FOR DRYING AND BAKING



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* * * * *

Drying and curing ovens designed for AIRAY are available for testing this modern method on your product at the completely equipped ROSS Laboratory. The facilities of this laboratory are at your service. Get in touch with our office nearest you.

ROSS SYSTEMS

J. O. ROSS ENGINEERING CORP.

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ROSS CONTROL OF AIR FOR MODERN INDUSTRY SYSTEMS

veyor has been cut in length to save a few thousand dollars in capital investment, and then the company has gone on for years paying the higher price for a faster-drying finishing material.

Operating supervisors or finishing room foremen have, in some instances, through prejudice or lack of knowledge, put their foot down on some thought that was an important factor in the layout. Of course, management usually feels that if the shop supervisors could not be sold on the thought, then it should be eliminated from the plans. This is a fine gesture on the part of the management to stand back of its supervisor personnel, but there have been times when the dividends didn't materialize. In one instance I know of, too much conveyor footage was installed because they could not understand that conveyors, without the application of heat, naturally speeded up drying over the old method of dead storage drying.

Heat Drying, Air-Circulating Equipment Inadequate

Then again, the new conveyor system may have been well laid out and properly installed, but the ovens and heating and humidifying equipment were an afterthought. In many installations the ovens and heating-humidifying part of the system have been "homemade", and temperatures and humidity vary beyond all reason. Another factor most frequently overlooked is the number of air changes that are required in the drying ovens to provide ideal drying conditions. The velocity of air should not be too great; and the *number of air changes per hour should be determined by the type of finishing material that is being used.*

A conveyorized finishing room should provide a great degree of cleanliness and good housekeeping. This important factor has been defeated, however, by too rapid a movement of air, either in the ovens or in the actual spraying area where no air make-up is provided.

Spray booths for conveyorized operations are, by necessity, much larger than those used in the old push and pull type of operation, and they require larger and more powerful fans. This fact is often overlooked and when five to eight large conveyor-type spray booths are installed, their demand for air is so great that they actually pull in dirty dusty air from adjacent departments, or from the outside atmosphere through window framing and doorways. If the building is so tight that they don't do this, then the fan efficiency is impaired, and we are right back again to a bad condition.

It must be remembered that *to get a maximum efficiency out of a conveyorized finishing room installation, the system should be loaded 100%.* By loaded, I mean with furniture that has been thoroughly inspected in the white, after leaving the cabinet room and before being put on the conveyor. After it has once been put on the conveyor and it has started on it's way through the system, it costs just as much to finish an imperfect piece of merchandise as it does to finish the perfect piece.

Why Another Factory's Conveyor Won't Fit Your Production

In planning a conveyorized finishing room, the management must bear in mind that there is no percentage in purchasing a system that has a greater capacity than the cabinet room, machine room or dry kilns can produce to feed the

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finishing room conveyor. Bill Jones will say, "Charlie Smith is running his conveyor so many feet per minute and I want my system to run just as fast." Or sometimes he says, "Charlie's conveyor is so many feet long and I think I should figure on one just as long."

Remember that each manufacturer's problem is different and must be approached on its own requirements to get the ultimate operating efficiency and the low costs which are the outstanding reasons for its installation. Different types of furniture, both in design and price brackets, require different treatment in the analysis of the problem. Different geographical locations of plants bring about other factors. Management's thoughts on long term programs must be borne in mind and given careful consideration. Don't think that just because Bill Jones or Charlie Smith set up their systems a certain way, that this is the answer to your problem, or that it sets a procedure for you to follow.

As in everything else, coordination is necessary to bring about the fullest results. In planning for your conveyorized finishing room, all the compotent functions must be coordinated. Careful planning while the system is still on paper is so vital that much depends on the completeness of thought given it at that stage, if your "streamlined" slave is not to become your "streamlined" master.

More Factors You Must Consider in Conveyor Design

The type of conveyor to be used should receive careful attention so that flexibility of operations is assured. The type of hangers on which the furniture is to be carried should be designed to offer ease of handling in loading and unloading. Provision in the layout for transportation of supplies is important. Location of work areas should be such as to eliminate confusion and provide for easy supervision.

A conveyor system is not a cure-all for your production problems. Once installed and in operation, it must be managed more by front office supervision than by floor supervision. Any empty space on the conveyor costs just as much in direct labor as if it contained a piece of furniture. All the advantages of a conveyor system are not only in the reduction of direct labor costs, but much comes from careful production planning that has been so sadly lacking in some furniture plants. A conveyor system will force management to do what it should have been doing right along. Careless and slipshod production planning is brought into the open where all can see. Empty spaces on the conveyor cannot be concealed.

Next month I shall write about what I consider the ideal finishing room for medium priced veneered bedroom suites.

Booklet on Ethyl Silicate

"Ethyl Silicate," a new booklet offered by Carbide and Carbon Chemicals Corp., a unit of Carbide and Carbon Corp., discusses the hydrolysis of ethyl silicate and its use as a source of silica. A detailed discussion of the principles of the hydrolysis of ethyl silicate is included, as well as typical formulas for the one-step and two-step methods of preparing silica depositing solutions.

Descriptions of the applications of ethyl silicate illustrate its effective use as a bonding agent in the preparation of molds for metal castings, in the formulation of heat-resistant paint, in cellulose nitrate and vinyl-resin lacquer formulations to improve adhesion to glass as a preservative and weatherproofing agent for stone, brick, concrete, and plaster; and in the preparation of solid fuels. Copies of this booklet may be obtained by writing to Carbide and Carbon Chemicals Corp., 30 E. 42nd St., New York 17, N. Y., and asking for Form 5989.

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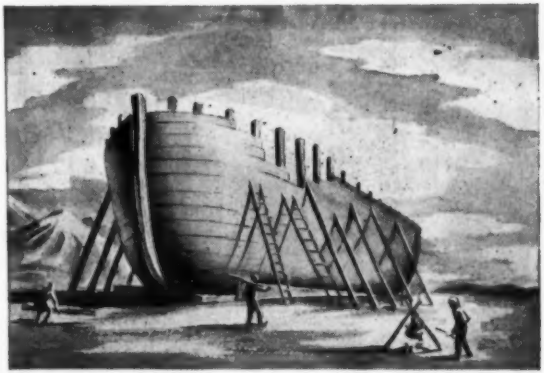


SCORE ONE FOR NOAH—From the day that Noah coated his ark with pitch from the trees, the protective value of resin was established. Natural resin was a major ingredient of fine paints and varnishes—until chemical research developed synthetic products, far superior to the natural resins. It's this man-made material that forms the

Whatever your requirements may be—war product or peacetime product, finish or finishing

ent of fine paints and varnishes—until chemical research developed synthetic products, far superior to the natural resins. It's this man-made material that forms the

SPEEDING THE AMMUNITION—An operator was using two passes of the spray gun with a specification paint to get adequate coverage of vitally needed shell casings. A Du Pont Finishes Engineer checked the paint temperature, recommended it be raised from 52 to 70 degrees. Results: Less thinner used, shells sprayed with a single pass of the gun, production boosted 10 per cent. A typical example of Du Pont service to war industry.

SMOOTH SAILING over tomorrow's airways is promised by this easy-handling private plane. Tough, weather-resistant finishes by Du Pont are preferred by many manufacturers with an eye to the future. Take advantage of the technical skill that has made Du Pont DUCO and DULUX the best-known names in industrial finishes.

Write: E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware.

DEPEND ON DU PONT FOR BETTER FINISHES

REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

Silk Screen Stenciling

(Part III—Airplane Marking)

BY BERT ZAHN

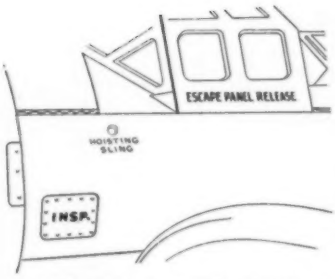


Fig. 1—Sketch of part of exterior of an airplane which has lettering that can be put on by silk screen stencils.

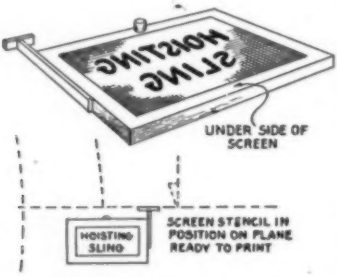


Fig. 2—Showing how the silk screen stencil for "Hoisting Sling" is made and placed in alignment.

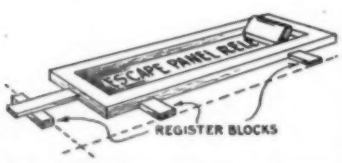


Fig. 3—Silk screen stencil for words "Escape Panel Release" with the guide blocks attached. Note "Squeegee" in position at right of stencil.

THE AIRCRAFT industry has been using silk-screen stencils for marking and placing insignia, as well as directional data on airplanes. Instrument panels, indicators, etc., are processed. This same principle may be used on machinery and equipment of all kinds as well as on toys, automotive vehicles, etc. In this article I will center my descriptive information around the airplane, but the same type of registration is usable on other items.

Two screen stencils and methods of registration that I have in mind at the moment include the "Escape Panel Release" and "Hoisting Sling," as shown in Fig. 1. The screen stencil for the "Hoisting Sling" is made with the Nu-Film method, as explained in previous articles. To obtain exact registration for positioning the stencil, use the hole in the plane and a guide stick mounted on the stencil frame, as shown in Fig 2. A small piece of wood about ½-in. in thickness is cut circular to fit loosely in the hole on the plane. This is attached to the bottom side of the stencil frame. The guide stick on the end is positioned against the riveted or division line on the fuselage to assure uniformity or evenness of the lettering, and to prevent slanting the lettering on the plane.

The printing is done by placing a small amount of paint on the squeegee or into the frame and running this paint over the silk. The squeegee will force the color through open meshes of the silk.

The lettering "Escape Panel Re-

Flock

gave us the answer we needed

Designers working on new or old products often find a surprisingly simple solution to a tricky problem, by coating the surface with flock. Flock consists of finely cut textile fibers, and can produce many effects from suede leather to upholstery fabrics. Its many attractive colors commend it for decorative work. Give us an inkling of your problem—maybe we can help.

Samples, prices gladly sent.

FUNCTIONAL

Used in airplane, auto, and numerous other industries for—

SOUND DEADENING—TEMPERATURE INSULATION—INTEGRAL GASKETS—SHOCK ABSORBING SURFACE—NON-MAR SURFACE PROTECTION

DECORATIVE

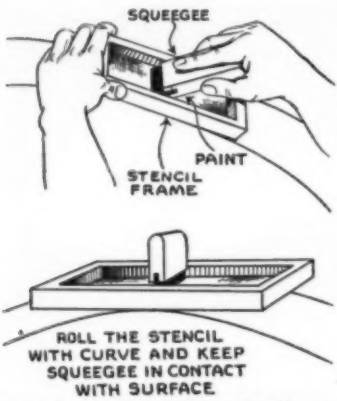
Applied in various lengths and colors to wood, paper, cloth, metal, etc., the following effects are produced—

SUEDE LEATHER — FURNITURE UPHOLSTERY FABRICS—AIRPLANE AND AUTO UPHOLSTERY FABRICS — VELVET—VELOUR—MOHAIR

RAYON PROCESSING CO. of R.I. INC.

55 TREMONT ST., CENTRAL FALLS, RHODE ISLAND

Developers and Manufacturers of Printing and Coating Flock



Figs. 4 & 5—Sketches showing how to apply screen stencil to curved surfaces

lease" on the side of the cockpit measures 2x20-in. For this the inside measurements of the frame should be 4x24-in. The size of the squeegee should be 3-in. or just a trifle larger than the lettering itself. It should never be the same size as the opening in the frame, as then it would tear the silk away from the frame. To get the copy in the proper place, or centered on the job, register arms are attached to the stencil frame. When you are ready to begin operations these register arms are placed against the left and bottom side of the panel on the plane.

Screen Stenciling Curved Surfaces

The application of silk-creen printing to curved surfaces usually stumps a lot of process operators. The simplest way is to roll the screen with the curve of the printing surface, moving the squeegee so that it is in contact with the flat portion at all times. (See Figs. 4 and 5). However, a specially constructed frame will make the operation simpler. It consists of a regular wood frame. On this fasten a piece of 5/6-in. or ½-in. thick strip of rubber (see Fig. 6). Stretch the silk over this, tacking onto the portion of the frame having no rubber stripping. Finish screen as on other previously mentioned methods. In screening, two men will make a simple job of this.

Metal Finishers Association Formed in Boston

A Massachusetts Charter was issued on March 9, 1945 to the recently organized Master Metal Finishers Assoc. of New England, Inc., which has established its office in the Boston Chamber of Commerce Bldg., 80 Federal St., Boston, Mass. Officers elected on May 22, 1945, are as follows:

Rosario A. Campisi....President
Colgate Gilbert.....V. P.
Louis Tosi.....Treasurer
Robert L. Smith.....Clerk

The Association has been active during the past few months in assisting the OPA in the preparation of OPA Regulation 581. Several open meetings for the entire industry in New England have been held at the Hotel Statler, with Boston Regional OPA officials present to clarify provisions of this Price Controlling Regulation. Mr. Campisi and Mr. Gilbert, with several other members of the group, have visited New York, Chicago, Indianapolis and other cities to obtain all available information that might be of help to New England Metal Finishers.

Walter R. Guild, a professional trade association manager, has been employed to serve as Managing Director.

Appointments in Monsanto's Organic Division

Robinson Ord, of St. Louis, has been appointed general manager of sales of the Organic Division of Monsanto Chemical Co. Mr. Ord, formerly an assistant general manager of sales, succeeds Fred C. Renner who died on June 26.

Other promotions announced at the same time include Arthur P. Kroger, of St. Louis, who has been appointed an assistant general manager of Organic Division Sales and Charles H. Sommer, Jr., of St. Louis who will assume responsibility for sales of intermediates as well as plasticizers and resins.

USERS TELL US WE'VE DEVELOPED A

Better Finish for Washer Bases

CHARACTERISTICS:

High resistance to soap, alkali and moisture . . . perfect matching of color with porcelain enamel tubs . . . complete color stability . . . long wearing qualities (is chip-proof and practically immune to scratches) . . . maximum protection against rust, due to excellent bonding properties.

APPLICATION:

Only one coat is needed. Finish is sprayed on.

BAKING TIME:

20 minutes at 300° F. . . . 7 minutes with infrared. (Optional schedules are available.)

Vedoc

All *Vedoc* finishes are developed for a specific use, then slightly varied to best fit into each customer's production setup. For more information about these "better finishes", write . . .

LIQUID PLASTICS DIVISION
FERRO ENAMEL CORPORATION
CLEVELAND 5, OHIO

Questions and Answers

Why White Synthetic Finish Wrinkles

There is one problem which has me puzzled and perhaps you can give us a clew. We are spraying a white synthetic baking enamel, of the ureaformaldehyde type, on .020-in. cold-rolled steel. Twice we have had batches come out of the oven with a small-grained wrinkle finish instead of a smooth high-gloss finish. Could you give us any idea as to what causes this?—K. R. Co.

It is possible that your trouble may be due to improper oven ventilation, especially if you are using a gas-fired oven. You know that the real wrinkle finish is helped along by having a purposely "fouled" oven, but when you want a smooth finish the oven ventilation should be functioning perfectly so there will be no trace of foul conditions within the oven.

Another possibility is that perhaps the areas that have shown a wrinkle effect have been coated too heavily. Perhaps some of the solvents did not have a chance to escape before the work was subjected to high oven heat. Still other possibilities are that you are not using the correct thinners or solvents; or your synthetic enamel may not be properly formulated for the work you are doing. As you probably know, some of the finishing materials for civilian products are not up to standard in quality at the present time because paint manufacturers are not able to obtain enough of the proper materials and solvents required.

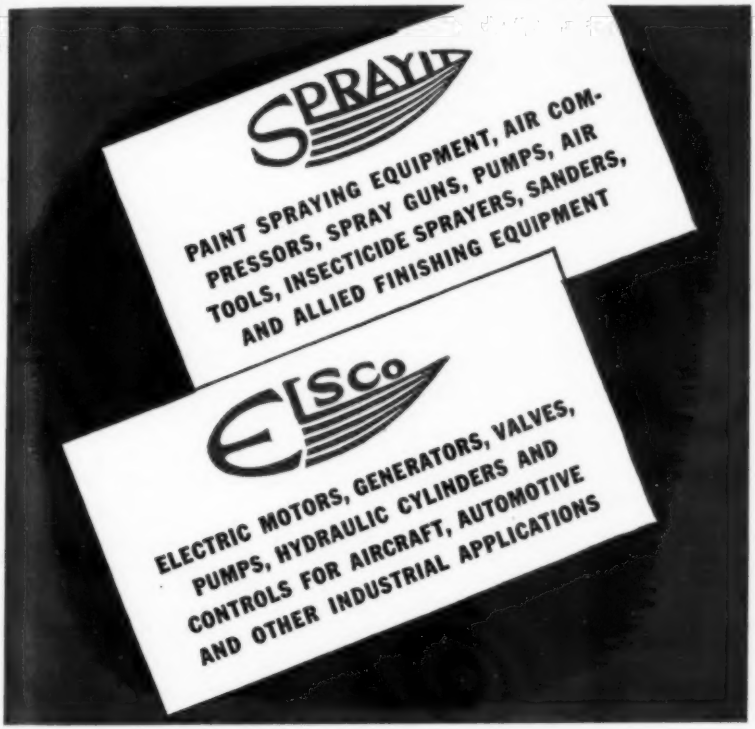
These are just a few suggestions. A well-informed service man who could investigate your conditions on the job, would be able to solve your trouble quickly.—A. B. C.

It appears to me that the wrinkle effect is caused by escaping fumes from a vapor degreaser. The vapor degreasers all use some type of a chlorinated hydrocarbon (trichlorethylene, perchlorethylene, carbon tetrachloride, etc.) and when these fumes come in contact with high heat, such as the burners in an oven, they are turned into an acid which attacks the urea types of finishes. This attack will occur if the vapor concentration is as low as two or three parts per million.

There is no remedy for this problem other than to exclude all of the degreaser fumes. Either the degreaser must be moved far away (preferably to a lower floor level) or the degreaser should be shut down just before the white finish is to be put in the oven.—J. A.

Testing Chromic Acid Solutions

We are interested in the article in the February issue of INDUSTRIAL FINISHING about "Anodizing Aluminum". At the present time we are installing a testing laboratory, and we hope to control our anodizing process very carefully. We would appreciate any refer-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PAINT SPRAYING EQUIPMENT, AIR COMPRESSORS, SPRAY GUNS, PUMPS, AIR TOOLS, INSECTICIDE SPRAYERS, SANDERS, AND ALLIED FINISHING EQUIPMENT
ELSCO
ELECTRIC MOTORS, GENERATORS, VALVES, PUMPS, HYDRAULIC CYLINDERS AND CONTROLS FOR AIRCRAFT, AUTOMOTIVE AND OTHER INDUSTRIAL APPLICATIONS

Delivery dates on Electric Sprayit Company products will be announced just as soon as conditions permit. We wish we could give you this information immediately but find this impossible in that all reconversion progress must be guided by timely events. During the meantime we suggest that you contact your Jobber so that he can place your name among those who will be the first to receive shipments of these two fine lines. If your Jobber's name is not known, write us and we'll send this to you at once.

ences or information you could give us on the control of the chromic acid tank.

Since it appears that it may be another four weeks before we get our Beckman pH meter, the immediate problem is to control the chromic acid by titration or conductivity methods and by laboratory analysis.—F. T. & R. Co. (Aircraft Division).

I have obtained the following information from our plant chemist:

For obtaining the pH of our chromic acid tanks, we are using a Leeds & Northrup Potentiometer Assembly No. 7661-A-1, with a glass electrode. This performs exactly the same job as a Beckman pH meter. However, the Beckman is more simple to operate and is just as accurate. At the present time we have a Beckman pH meter on order, to use in checking our chromic acid rinse in the paint shop setup but, like you, we cannot get immediate delivery.

Our complete anodizing process is controlled as set up in a booklet published by The Mutual Chemical Co. of America, Jersey City, N. J., entitled, "Anodizing Aluminum by the Chromic Acid Process".—WM. W. LOMAN.

Linseed Oil in Filler?

In the article entitled, "Thinning Paste Wood Fillers" (June, 1945, page 122) I notice a statement to the effect that it is a dangerous practice to add a little raw linseed oil to filler, etc., and that this will often cause the sealer (?) to turn gray over the pores.

I am no expert finisher but it was my understanding that far from causing the filler to turn gray in the pores, the addition of linseed oil is a cure for this very condition—where a combination of "lean" filler, applied on very porous woods, makes the filler turn gray in the pores by sucking away the oil. Mahogany, especially the softer kinds and when colored with water stain, is most apt to do this.

To prevent this trouble we added boiled linseed oil to regular commercial fillers—or we thought we did until an honest finishing supply salesman told us that there is practically no boiled linseed oil on the market and that the material sold as such is really raw linseed oil doped with Japan drier to shorten its drying time.—S. V.

In regard to adding linseed oil to fillers, either to make them wipe more easily or to help overcome gray pores, I think a very small amount of boiled linseed oil might help some, especially in the latter case.

Due to Government limitations on the use of linseed and other oils, manufacturers of fillers have been forced to cut down on the amount of oils used in their fillers. This has caused most fillers to be "short" in oils. Often this causes the filler to turn gray when used on porous and soft woods such as mahogany, as you say.

As to using raw linseed oil in filler, I agree with Mr. R. H. Wampler, the author of the article, that this is a dangerous practice because raw linseed oil dries much slower than boiled linseed oil, and in all probability it would retard the drying of the filler to the extent of causing it to lift under the sealer.

You mention that your supplier of linseed oil tells you that you have really been using raw linseed oil with drier added. Due to the fact that only so much drier can be added to the oil, I doubt

We developed into 8 Ball *Specialists*—

—by OVERCOMING every wartime material shortage

Judicious use of available raw materials has enabled us to help our customers out from behind the 8-ball of wartime shortages and restrictions. We at Reliance have not disappointed a single customer during the emergency. In every instance, we were able to supply sufficient materials for full production.

With this enviable record to date, we feel confident of being able to continue to produce from now on with the same regularity with which we delivered in the darker days.

Rely on Reliance

RELIANCE VARNISH CO., Inc.

if enough could be added to make it dry satisfactorily, if used in filler.

I understand that now most linseed oil manufacturers are "kettle bodying" their linseed oil and then cutting it back with mineral spirits. This they are compelled to do because of Government limitations on its use for civilian purposes. By so doing, they stretch their oil to make it go farther. This may account for your being able to use raw linseed oil. The mineral spirits used to thin the oil and the addition of all the drier possible might make it suitable to use in filler, especially if the filler were allowed to dry 24 hours before application of the sealer coat—H. W. CHESTER.

Mr. Viragh's comment on my statement that raw linseed oil should not be added to wood fillers to make them wipe easily brings up a most interesting point. Let me say first of all that under the conditions he mentions the addition of a little oil may actually cure a condition where filler is turning grey in the pores. My own thought is that this is a somewhat hazardous way to eliminate the trouble because if a slight excess is used, or if drying conditions are not too good, the lacquer sealer itself may become milky over the filled pores.

A far better way to prevent porous woods from absorbing too much of the binder in the filler, thus turning it grey, is to glue size or wash coat the wood with lacquer sealer thinned to about 6% or 8% solids, or with shellac cut to about 10% solids, before applying the filler. The sizing or wash coat thus satisfies much of the porosity or "suction" of the wood, and prevents it from absorbing an excessive amount of the binder in the filler.

I would like to add the comment that we who formulate wood finishing materials today give much attention to formulating binders that are not easily drawn away from the filler pigments. Modern, scientifically made wood fillers are much more free of this danger than those made some years ago. In any event, Mr. Viragh's comment is pertinent, and I welcome the opportunity of expressing my own views on the matter.—R. H. W.

"Lime" and "Wheat" Finishes for Oak

We have been referred to you as a source of information in regard to who supplies the Lime, Wheat, Tawny Wheat and Coral Oak finishes which, we understand, are used by certain furniture manufacturers for finishing breakfast sets, etc. We would also like to know how these various effects are obtained; that is, the procedure to obtain these types of finishes. Any information you can furnish us in this respect will be appreciated. —T. Co.

In a letter we are submitting names and addresses of several concerns who, we believe, can furnish materials for producing the finishes listed in your inquiry.—ED.

The limed oak finish that has been popular for several years is not difficult to obtain. First of all, the oak lumber should be selected white oak, or it should be bleached. The wash coat may be shellac or lacquer sealer; but in either case the material should be reduced so that only a very thin film is deposited. If the lumber is somewhat darker than is desired,

These photos show the difference that

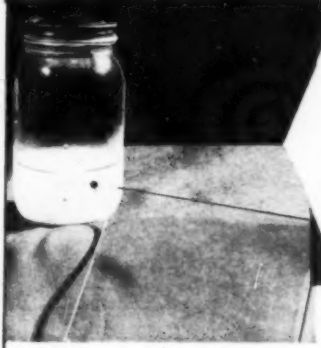
Klarifiant

water wash compound

makes in the operation of water curtain spray booths

WITHOUT KLARIFIANT

Six drops of enamel in 7-grain hard water . . . shaken well . . . and flowed over glass plate to simulate water curtain action. Note how finish sticks to sides of jar and deposits on flow sheet. Note heavy residue on bottom of jar. This is how hydraulic systems become clogged and difficult to clean.



KLARIFIANT ADDED

Same amount of enamel in a ¼% solution of Klarifiant in water. Note perfect deflocculation in jar. Note clean run-off from glass. Klarifiant maintains the same standard of cleanliness in actual use in water curtain booths . . . The harder your water, the greater your need for this Klarifiant action.

And the same factors which bring about these outstanding differences, likewise enable Klarifiant to keep systems far cleaner, for longer times, at lower cost than is possible with ordinary compounds.

To observe these superiorities in your booths . . . with **your** finishes . . . using **your** water . . . under **your** operating conditions, ask for a demonstration.

THE DU BOIS COMPANY - CINCINNATI 3, OHIO

Warehouse Stocks In All Principal Cities — Service Men Everywhere

the addition of a few ounces of white lacquer enamel per gallon of lacquer-type wash coat to produce a toner, will effectively lighten the background color without obscuring the grain pattern too much.

After sanding the wash coat, the wood is filled with a white filler. This filler must be wiped clean to eliminate white smears. When the filler is dry, a coat of lacquer sealer and one or two coats of very pale varnish or lacquer complete the system. The film is rubbed dull; or rubbed and polished to a high polish.

The system just described is only suitable for oak lumber and woods of like color and texture. For close-grain woods a limed oak pigment stain has been used to produce a fairly effective color. However, it is a poor imitation at best. A real limed oak finish requires conspicuous white pores in the wood.

Wheat and tawny wheat finishes have been produced on many woods. The color is a characteristic light, warm yellowish-brown, similar to that of ripened wheat. Tawny wheat is slightly darker and browner than the ordinary wheat or harvest calor.

On mahogany, wheat colors have been produced by first bleaching the wood thoroughly. Then a very light yellow non-grain-raising stain is applied, followed by the wash coat; or the color may be incorporated in the wash coat itself. The filler is a light brown color, to give the pores a slightly darker color than the rest of the wood. This effectively brings out the grain pattern. The filler is followed by sealer and lacquer or varnish.

On oak, very much the same procedure may be followed. Prima vera, avodire, and other light-colored, open-pore cabinet woods are finished in a similar manner.

On close-grained woods such as maple, tupelo, and poplar, a wheat finish is most easily obtained with a wiping stain of the correct color, applied directly to the wood. The color may be evened up or deepened by shading very lightly with the pigment stain, or with a regular lacquer shading stain. The color coats are followed by lacquer sealer and the final coat or coats. Some finishers prefer to use a non-grain-raising stain for the first coat, followed by the pigment stain for uniforming. This system accentuates the grain of the wood more than does the pigment stain.

I am not familiar with the coral oak finishes, and so cannot offer any constructive suggestions on how to obtain them.—ROLLIN H. WAMPLER.

How to Finish Wood Garment Hangers

We are manufacturers of wood and wire garment hangers. We have a very good system of baking enamel on the wire hangers. However, we are desperately in need of an efficient method of finishing wood hangers on a production basis at a minmum cost.

For many years we have been dipping wood hangers in lacquer, but our system is out of date and has been costly in order to obtain the finish our competitors are producing. We are making from 50,000 to 60,000 wood hangers a day and are polishing them with wax by the tumbliing method.

Certain classes of our trade are demanding that we develop an inexpensive finish in clear lacquer or varnish and colors. The finish must be smooth and glossy, and the price must be low; for example, a wood dress hanger, in order to be competitive, cannot sell for more

"Useful, of course . . . but be sure to make them beautiful," says Mrs. Housewife when asked about home products. She and millions like her buy what pleases their eye. Johnson chemists, alert to this simple truth, successfully combined high-quality enamel with *wax*—created WAX-O-NAMEL, a finish of unmatched beauty!

Sales start with the *greater beauty* of a *WAX-O-NAMEL* finish! This patented, wax-impregnated enamel, only finish of its kind, imparts a rich luster . . . a smooth, satiny "feel" that actually helps *sell!* WAX-O-NAMEL affords *extra protection* against dirt, fingermarks and "shopwear." It helps surfaces stay "new looking". . . keeps them clean longer. When necessary, cleaning is easier.

WAX-O-NAMEL is easily applied and dried by routine methods. Successfully used before the war, WAX-O-NAMEL can be put on any surface suitable for ordinary enamel.

Johnson's Wax national advertising for fall will include a special message merchandising WAX-O-NAMEL to millions of consumers. Labels and tags are being made available. Though not now in production because of war shortages, *now* is the time to get all the facts about WAX-O-NAMEL. Write for full details today!

Speed final victory with EXTRA War Bonds!

JOHNSON'S WAX-O-NAMEL *is made by the*
Trademarks Reg. U. S. Pat. Off.

makers of **JOHNSON'S WAX** *. . . a name everyone knows*

S. C. JOHNSON & SON, Inc., Product Finishes Department, Racine, Wisconsin

than 1¼ to 1½c each. Taking this into consideration, we cannot afford to do any hand sanding or do any unnecessary handling. The local paint companies cannot help us, as none of them have any experience with customers in this area finishing small wooden parts on a mass production basis.

Any information you could give us in solving our problem will be greatly appreciated. We have noticed the finishes on paint brush handles and have always wondered at the nice finish obtained. Surely the finish must be inexpensive, especially on the cheap handles. We cannot help but feel a similar method and finish could be accomplished on our wood hangers.—H. C. Co.

It seems to me that your system of finishing wood garment hangers by dipping in lacquer and tumbling with wax is about as simple as could be devised. The possibilities for reducing finishing cost without sacrificing quality would seem to lie in modernized production methods rather than in the finishing materials themselves.

For example, let us assume that you are dipping by hand or with small capacity dipping machines. Conveyorization offers some interesting possibilities for reducing costs. A small power-driven overhead monorail conveyor could be devised which would automatically perform the dipping operation. Garment hangers could be loaded on hooks or racks and carried along by the conveyor.

Over the dipping tank the conveyor could have a section that bends down and then up to allow the hangers to descend into the tank, and then come out at the proper rate for good results. The rate of withdrawal and the characteristics of the lacquer would have to be carefully adjusted to give proper results. Your hangers could air dry on the conveyor or pass through a small drying oven to drive out the solvents. The use of an oven will greatly reduce the length of conveyor required. Hangers could then be removed and tumbled with wax in large tumbling barrels.

Large dipping machines offer interesting possibilities. Most paint brush handles are finished by dipping in very large batches. The handles are fastened to racks which may hold as many as 100 handles. The racks are lowered into the dipping tank, and the vertical withdrawing mechanism is set to withdraw them at from 2 to 4-in. per minute. These limits have been found best for a full coat free of runs and sags. After drying, more coats may be applied in a similar manner as required. The lacquer has to be specially formulated to give good results. Perhaps you can devise a similar machine suitable for your product. After the dipped coating is dry, you may still find that tumbling with wax will be necessary to give the required smoothness and freedom from stiff wood fibers which might snag the fabrics that will be hung over them later.

It is possible that you can finish your hangers entirely by the tumbling method. Large tumbling barrels would be required for economical finishing. The hangers could be tumbled with shellac to a point where the shellac is almost dry. Then wax could be added to the charge and the tumbling continued until the required smoothness is obtained. Or the hangers could be tumbled with lacquer, and then with wax without removing the charge for drying. It

The Favorite Finish

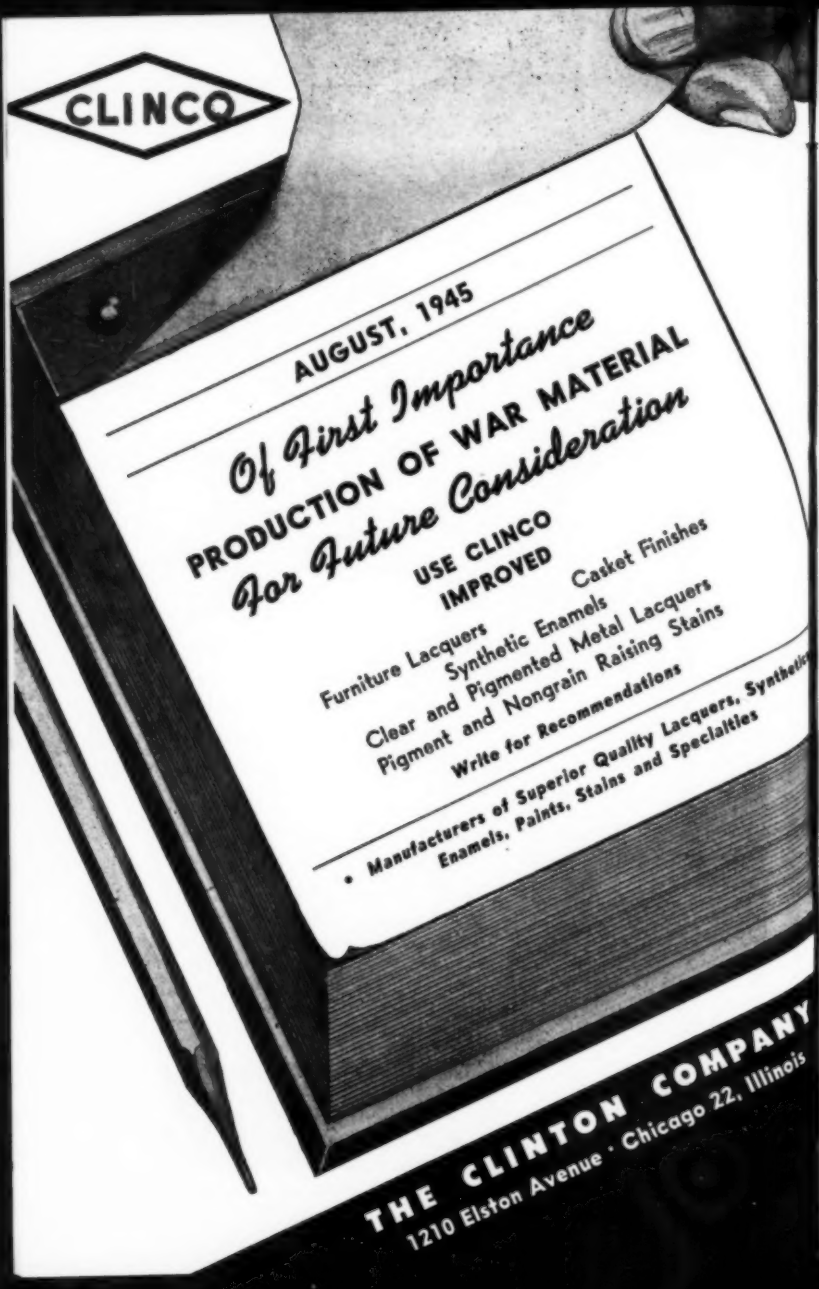
For legs, it's sun tan . . . for your product it's a colorful enamel, or a rich gleaming mahogany stain and lacquer, or one of a hundred and one other finishes.

And that's right where we can help you . . . in selecting or creating the best finish for your particular product. Write us about your problem.

No Tampering with Quality

ROCKFORD VARNISH *Company*
ROCKFORD, ILLINOIS

Manufacturers of Protective and Decorative Coatings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Of First Importance
PRODUCTION OF WAR MATERIAL
For Future Consideration
USE CLINCO
IMPROVED
Furniture Lacquers
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Clear and Pigmented Metal Lacquers
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is entirely possible that you could tumble the raw hangers with a mixture of shellac or lacquer and wax, so that only one operation is required. The technique of tumbling will have to be learned by experimenting until the desired results are obtained. A cardinal principle in tumbling is that the amount of coating material must be carefully measured so that there is just enough, and not too much, to give the desired results.

It is entirely practical to tumble with pigmented lacquers or lacquer enamels, if your trade requires colored finishes. Or the lacquer can be colored with light-fast dyes to make transparent colored finishes.

Manufacturers of conveyors, tumbling barrels, and finishing materials for wood products will be glad to collaborate with you in solving your production finishing problem. Since the details of your finishing methods are not fully revealed in your letter, I can only offer general suggestions. Hand sanding is expensive, and is not contemplated in these suggestions. However, I believe that the finishing process must be either continuous or in very large batches if the finishing cost is to be kept at a competitive minimum.—ROLLIN H. WAMPLER.

Coating on Engineering Layout Boards

In a number of the engineering departments of large automobile factories in America, a full scale drawing of each model was made on a painted aluminum layout board. The finishing system used on these sheets was sufficiently hard to take pencil lines and the surface was matt enough to prevent the easy removal of these lines by friction, over a period of months.

Can you tell us what type of paint was used on these sheets and what procedure was in use for its application? Was the metal surface pretreated in any way? Were the 10-in. squares or datum lines inscribed through the film to the base metal, or were they painted on the board in a different color? If so, what type of material was used?—Pressed Steel Co., Ltd., England.

We have just learned that some of the big concerns in this country use a quick-drying primer called "preparakote". We understand that four or five coats of the material are applied to the layout boards to make them ready for this kind of service.—ED.

Use .072-in. aluminum sheet backed up with plywood. Sandblast surface of the sheet and apply a good primer coat, and let dry thoroughly.

Apply six coats of pure white paint. Let each coat dry thoroughly and rub down each coat with pumice stone and water.

After the six coats have been finished and rubbed down, allow the board to dry for 30 days so the paint will thoroughly harden. Then scribe fine vertical and horizontal lines 10-in. apart before layout is started.

Parts are laid out as detail; that is hidden lines only when hidden by the part itself. Colored inks may be used; black for contour lines, yellow for glass, etc. Art gum is used on each line before it is inked and a thin solution of clear lacquer or shellac is brushed over each line afterward.

Contour lines are worked out by using proportional development on vellum paper, and then added to

draft. Large mathematical curves are used for design lines and small curves are used to take out rough spots. Splines and ducks are forbidden, as they do not always give suitable curves.

When changes are made, a knife is used to peel the shellac or lacquer coating off the inked line, and the line is erased with a hard rubber eraser. Silver solder sticks sharpened to a fine point make very good drawing pencils for making lines on the loft. The board can be cleaned with carbon tetrachloride when finished. After the board is completely finished it can be coated with clear shellac, but care must be used to keep the inked lines from "running".

Of course, if some other type of layout is wanted, a little experimenting with a board prepared in the above fashion will produce any result wanted.—H. J. ETHERIDGE.

N. H. Burgess Joins Metallurgical Firm

On July 15, N. Hunter Burgess left the paint industry after 25 years service with one company in Newark, N. J., to become Assistant Sales Manager of Pittsburgh Metallurgical Co., Inc., with factories at Niagara Falls, N. Y. and Charleston, S. C.

1945 "Convention-at-Home" N.P.V. & L.A. Oct. 31-Nov. 2

Dates for the 1945 "Convention-at-Home" of the National Paint, Varnish & Lacquer Association will be Oct. 31, Nov. 1, and Nov. 2., President Ernest T. Trigg announced in a letter mailed to members of the industry. This will be the fourth consecutive convention by mail necessitated by wartime hotel and transportation conditions since the last regular convention was held in Chicago in 1941, and will constitute the 57th annual meeting of the Association. A "statutory meeting" for the election and other annual business will be held at Association Headquarters in Washington, as in the past three years, in conformance with the by-laws.

Suggestions from members of the industry of subjects which they believe it would be desirable to include on the program by mail are solicited and should be mailed to the National Paint, Varnish and Lacquer Association, 1500 Rhode Island Ave., N. W., Washington 5, D. C.

H. C. Fornwall to Handle Wax-O-Namel Sales

Harold C. Fornwall has been appointed Merchandiser for the Wax-O-Namel sales division of S. C. Johnson & Son, Inc., Racine, Wisc., makers of Johnson's Wax, according to P. M. Peterson, Sales Vice-President. Fornwall was formerly head of the customer research and service laboratory and of the training school for a large spray equipment manufacturer.

Freight by Air, Anywhere

Formation of the first and only commercial all-cargo airline set up to operate on a non-schedule basis to any airport in the U. S. was announced recently by Air Cargo Transport Corp. at its main office in the Empire State Bldg., 350 Fifth Ave., New York, N. Y.

This line is in operation with a fleet of especially designed twin-engined transports and, because cargo will be carried in each instance on a charter basis, can promise delivery on a time schedule as set forth in the agreement between shippers and company.

Postwar Construction Projects

Thomas S. Holden, President of F. W. Dodge Corp., reports that his organization's field staff, by the end of May, had spotted 99,638 specific construction projects contemplated for postwar execution in the 37 states east of the Rocky Mountains. The combined value of all projects is $15,746,202,000. Mr. Holden emphasized that the listings included specific projects only, and do not include announcements of general construction or expansion programs.

Analysis of the individual project reports shows that 33,104 jobs, estimated to cost $7,753,138,000, have progressed to the design stage. It is these projects which will be advanced toward execution as rapidly as government regulations, and supplies of materials and manpower permit.

The remaining 66,534 projects, with an estimated cost of $8 billion constitute a backlog of specific contemplated projects, many of which will progress to design stage as rapidly as architects and engineers can find enough draftsmen to expand their currently limited planning activity.

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These economical finishes for metal cover more units per gallon than many specialty and synthetic finishes. Easy to apply, they wear well, and their cost is moderate. Get Hilo Bulletin #1—Black Enamels and Japans; then send for samples of the Blacks you'd like to try.

#916 Black Crystal

A sparkling finish in one coat . . . on any hard non-porous surface! That's the performance of this crystal. Tough, waterproof, and oil-proof, it will cover 350 square feet per gallon. Compare this covering with that of other non-smooth Specialty Finishes. Write for Hilo Bulletin #8 and a free sample of #916 Black Crystal.

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Materials Supplies Equipment

Box-Type Oven

The Industrial Oven Engineering Co., 11621 Detroit Ave., Cleveland, Ohio, has developed a new standard box-type oven for the high-speed evaporation and drying of highly volatile solvents. It is a self-contained unit, with all heating equipment and ductwork built into the oven shell, and is either shipped assembled ready to operate, or is shipped in pre-fabricated sections for quick assembly at the point of operation.

Door sizes range from 3x3-ft. to 5x6-ft., and working depth from 3 to 6-ft. The temperature range is from 150° to 900° F. Despite the fact that the oven is direct gas-fired, a seeming hazard in the evaporation of large volumes of inflammable and explosive materials, it has been proved to be perfectly safe and has insurance company approval.

These ovens can be used not only for alcohol but for acetone, naphthas, methyl-ethyl-ketone and many other highly volatile solvents. They can be converted without delay for other types of drying, finishing, heat treating or heat processing where materials can be handled in trays, jigs or baskets. It is especially suited to dense loads where air stream resistance is high. Completely automatic controls, of the expansion recording thermometer type or the millivoltmeter type, either air or electrically operated, are supplied to suit the user.

Can be shipped as is or in sections.

Testing Machine

The importance of plastics, plywood and lighter sheet metals in postwar industry has led to the development and production by the Southwark Division of the Baldwin Locomotive Works, Eddystone, Penna., of a small machine for testing these materials. Since this machine, with an alternating force capacity of 100-lbs., also is ideal for testing structural components and machine parts in both repeated bending and repeated torsion, it is truly a universal machine. This one machine should solve the problems that are facing test engineers in many industries.

One feature of the machine permits any predetermined alternating

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It will cost you nothing to learn more about Texon streamlined coatings. It may save you a lot of money and headaches. Just to be sure, why not write us today. If a sample is required we'll be glad to send it.

Note: *When writing advise us what article it to be finished. Quality and type of finish required. Method of application. If possible —send sample of unfinished piece and sample of finish desired.*

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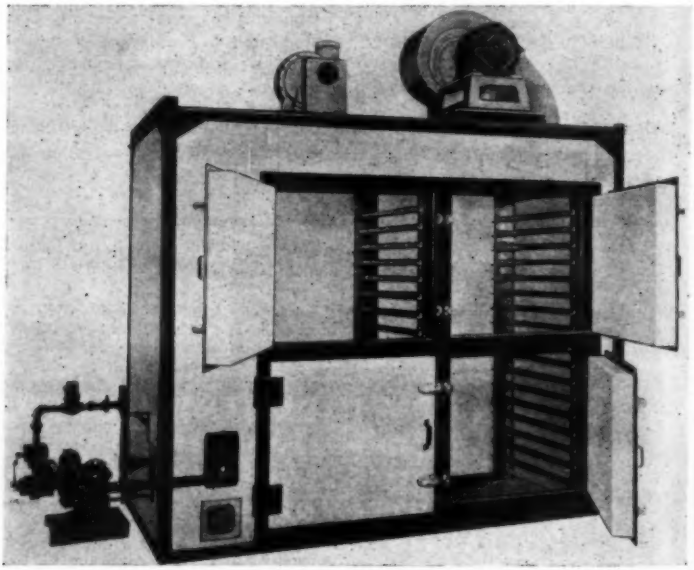
load to be kept automatically constant, regardless of the changes of deflection that may occur in the specimen under test. The 100-lb. capacity of the machine can be adjusted in increments of .2-lb. Its speed is 1800 load cycles per minute and has a maximum capacity in bending of 200 inch pounds and in torsion of 1125 inch pounds.

Recirculating Cabinet Oven

To meet requirements for baking or drying operations, where quick removal of volatiles produced by heating the work and reduction of heat processing time by means of frequent air changes are required, a shelf-loading oven with a self-contained heating system has been developed by Gehnrich Oven Division of W. S. Rockwell Co.,* 50 Church St., New York 7, N. Y.

This type of oven (or dryer) combines an internal heating system with air recirculation in a heat processing chamber that can be made of any desired size with any number of shelves or trays.

The oven is of insulated steel panel construction. Firing into a combustion chamber at the left of the processing oven is a line type gas burner connected to a motor-mix proportioning unit, complete with motor and air safety control valves, flameotrol, electrode and spark plug for automatic relighting of the burner. The combustion and heating chambers are separated by slotted shield. *(See p. 100)*



A 4-door recirculating cabinet-type oven that has several interesting features.

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THE P. D. GEORGE CO.
SAINT LOUIS, U. S. A.

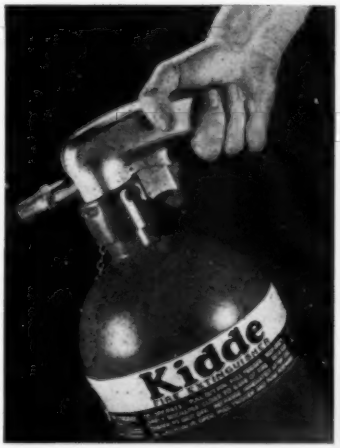
Heat generated by the burner is drawn upward by means of a large recirculating fan mounted on the oven roof. This fan forces the heated air through a duct into a distributor duct at the right hand side of the oven, whence the air is forced through adjustable slide louvres in streams across the full width of the oven, moving uniformly above and below each shelf or tray of work. Then, it is drawn through similar slots into the combustion chamber for recirculation. Mounted also on the roof is a motor driven exhaust fan to draw off volatiles emanating from the work as it is heated.

Fire Extinguishers Have Trigger Feature

The trigger control, which has distinguished the smaller sizes of Kidde carbon dioxide fire extinguishers, has now been extended to the larger portable models. Operated entirely with one hand, the new streamlined model is controlled by an upward pull of the index finger, the largest extinguisher requiring approximately the same trigger force as the smallest. It can be latched open when desired by a slight forward motion, and as easily disengaged to avoid wasting gas.

There is only one directional change in the valve passage, compared with as many as three 90° turns in certain other types of valves, avoiding loss of force and giving a full flow of liquid carbon dioxide directly to the nozzle.

The streamlined, one-piece handle closure protects the valve itself, is light in weight and fits the hand comfortably. Other improved features of the extinguisher as a whole are the permanent bushing and removable siphon tube, which allow inspection, periodic hydrostatic testing and, when necessary, replacement of any part, without devalving.



The extinguisher is carried and operated with one hand, leaving the other free at all times to manipulate the discharge nozzle.

The locking pin fits into a blind hole so that there is no possibility of its getting bent and jamming, and the seal wire is placed where it is least likely to be broken, and most easily observed. It is a product of Walter Kidde & Co., Inc., 140 Cedar St., New York 6, N. Y.

Heat-Resisting Paint

"Kemick" is a chemical paint designed for use on hot metal surfaces. It produces a gray-black finish which will not burn off. It is excellent for automobile exhaust manifolds, gas burners, boiler fire doors, and other metal surfaces that are to be heated to high temperatures. Its more volatile in-

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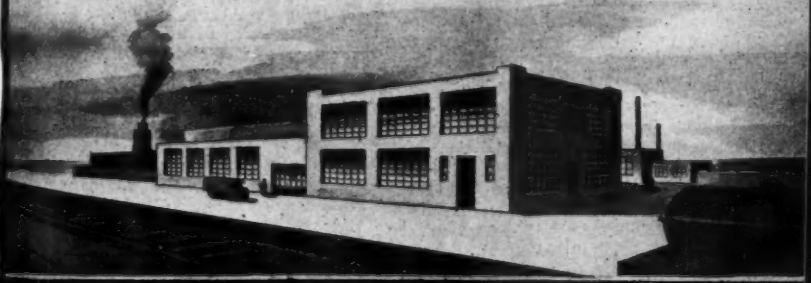


DOPES · LACQUERS · ENAMELS

RANDOLPH

FINISHING PRODUCTS CO.

Carlstadt New Jersey

gredients serve to spread the material evenly on the surface and hold the pigment in place before heating.

When heated, "Kemick" partly decomposes, the volatiles are expelled and chemicals are liberated to react with the metal surface, to become a part of it, and to neutralize rust producing agents. The heat that decomposes ordinary paints into worthless ash changes Kemick into materials which become integral with the metal and prevent rust. The coating does not burn off, but retains its gray color and its protective properties.

"Kemick" has been thoroughly proved in regular production by manufacturers of automobiles, trucks and aircraft. It is extensively used on boilers, electric furnaces, flues, smoke pipes, in fact, wherever paint is required on surfaces subject to high temperatures. It is a product of American Chemical Paint Co., Ambler, Penna.

Drum Handling Unit

The new Falstrom "Barrel-lift" raises loaded drums off the floor with ease, transports the drum, and is arranged for tilting to dispense contents. Drums may be rotated with little effort when thorough mixing prior to pouring is desired. A heavy drum placed in the Falstrom Barrel Lift is maintained in a balanced position and little effort is required for rotating or tilting it.

Pick-up is simple with a safety-locked chain arrangement encircling the drum. Self locking safety stops, conveniently located, provide finger-tip safety control. The mechanical linkage of the lifter is adjustable to give several degrees of leverage permitting the handling of drums up to 1000-lbs. gross weight.

One man can handle and move heavy drums easily, quickly and safely.

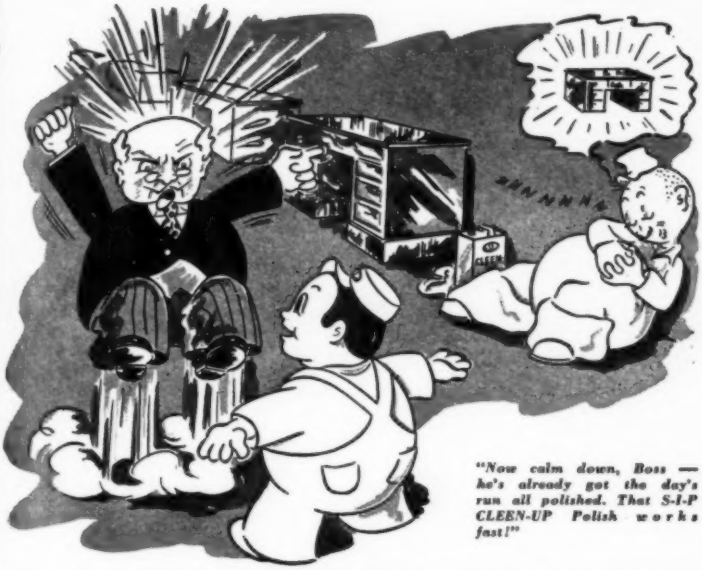
Saddle tilt locks hold open-head drums in a vertical position during transport, which effectively prevents tipping and spilling of contents. Drums may also be locked in tilted position. Use of this barrel lift enables drums to be handled by one operator, safely and rapidly. This unit is heavy duty all-steel welded construction. Shipping weight is 113-lbs.

This Barrel-lift is a product of the Falstrom Co., Falstrom Court, Passaic, N. J.

Aluminum Pre-Cleaner and Deoxidizers

Optimus Detergents Co., 208 Church St., Matawan, N. J., manufacturers of industrial metal parts cleaners, announces the introduction of Optimus Aluminum Pre-Cleaner and Deoxidizers. Their use now permits the producing of low surface resistance on aluminum preparatory to spot welding.

Among the advantages claimed are: a smut-free surface, oxide re-



"Now calm down, Boss — he's already got the day's run all polished. That S-I-P CLEEN-UP Polish works fast!"

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That's right! S-I-P CLEEN-UP Polish makes your final clean-up easy, quick and effective! Just "wipe it on and wipe it off" . . . away go finger marks, rubbing compound, dust and lint.

Leaves no film or streaks . . . contains no harmful solvents.

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EVANSVILLE 4, INDIANA

moved using a cold solution, negligible weight loss, minimum machine adjustment and minimum handling. Shop dirt, cutting oil, grease and identification paint are easily and completely removed in the prescribed pre-cleaning operation.

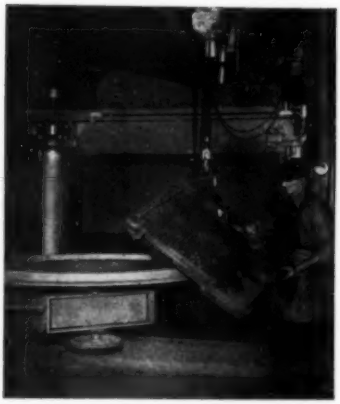
In addition, the aluminum is placed in condition for Alrok treatment, anodizing and painting. With the use of the proper method all classes of alloys are easily handled.

Wheelabrator Swing Table For Metal Cleaning

The Wheelabrator Swing Table, manufactured by American Foundry Equipment Co., 555 Byrkit St., Mishawaka, Ind., extends the speed and economy of airless blast cleaning to a wide range of intricate or irregular shaped work formerly cleaned in air blast rooms in jobbing foundries and other metal working plants.

Four sizes of this blast cleaning machine are now available. Work to be cleaned is placed upon a rubber-covered work table which is mounted on the door of the blast cabinet. As the door is closed, the work table swings into the cabinet underneath a Wheelabrator airless blast unit. While in this position the table is rotated at a predetermined speed. The Wheelabrator unit whips a continuous stream of abrasive down upon the rotating work to the full width of the table so that all surfaces are uniformly blasted to a bright, clean finish.

Only a very short exposure of the parts to the Wheelabrator unit is required to clean the exposed surfaces thoroughly and uniformily. The Wheelabrator unit is then stopped, the door is swung open and the part is turned over for cleaning on the underside.



Dry cleans metal castings quickly.

For Treating Cement Floors

Many industrial plants, troubled by dusting cement floors, are eliminating this menace during reconversion. While equipment is being changed or shifted, it is a simple matter to treat the offending floors with a new, fast-acting liquid that quickly eliminates dusting at the source.

This liquid "Synkrete," is a concentrate that is diluted with three parts water before use. It is then applied by brush mop, or sprinkler to saturate an area. It penetrates deep to fill the pores and reacts with the cement to harden into a rock-like, impenetrable mass.

"Synkrete" dries in a few minutes, so that floors remain usable, although reaction is not complete for several days. A single application is sufficient to allay dusting, although two or three at 24 hour intervals are recommended for lasting results. Users report that not

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DURALAC CHEMICAL CORPORATION
LISTER AVENUE NEWARK 5, N. J.

only is dusting eliminated, but floors become far tougher, more resistant to traffic, the effects of moisture and chemicals.

Details about Synkrete, its cost, and technical recommendations are obtainable from Synthex Products Co., 2 W. 45th St., New York, N. Y.

Dustex Dust Collector

Applying the principle of reducing the ratio of air volume to filter surface area, the new Tubular Dustex dust collecter has proved that it can collect and retain any type of dust or lints with perfect efficiency. Developed and manufactured by the Dust Filter Co., 160 N. La Salle St., Chicago 1, Ill., after months of experiments and tests the collector comes in three sizes. All of these are portable and self-contained and designed to meet the need for an efficient and economical means of removing any kind of dangerous and obnoxious dusts from the air arising from any type of dust producing operations. The unit is specially adaptable to the requirements of buffing machines.

Portable, fireproof and efficient.

No collector bags are used in the unit. The filter surfaces are tubular in design and are bottomless. Dust filtered through them is collected in a pan at the bottom of the unit.

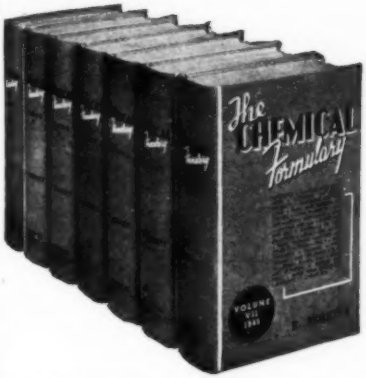
The collector maintains a static air pressure of more than 4-in. at a velocity of over 5000-lfm. It is completely fireproofed. Units weigh from 150 to 250-lbs.; are 36 to 48-in. high. Motors are A.C., ¾ and 1½-hp.

Filtered air is discharged through a large muffler to deaden air noise but with minimum resistance.

Resin Coating Protects Wrapped Foods

Application of the automotive finish resin, Duraplex C-49, to the newly developed self-sterilizing food wrappers was announced recently by the Resinous Products & Chemical Co., of Philadelphia. The resin was selected for its chemical inertness, durability and pigment wetting and binding properties, and the finishes produced with the resin are noted for their water resistance, adhesion, flexibility and toughness.

Originated at the California Institute of Technology by the Staff of the Rare Metals Institute, under the direction of Dr. Alexander Goetz, these new sterilizing coat-



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Lubricants	Removing Stains	Pharmaceuticals	Textiles	Cleaners
Drugs	Bleaches	Oils & Fats	Fibres	Waterproofing
Farm & Garden	Ceramics	Liquors	Beverages	Metals
Specialties	Deodorants	Dyeing & Coloring	Flavors	Alloys
Resins	Disinfectants	Fluxes	Rustproofing	Glues
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INDUSTRIAL FINISHING Magazine

1142 North Meridian Street **Indianapolis 4, Ind.**

ings for food wrappers such as; metal foil, plastic films and paper, sterilize the surfaces which come in touch with food material by destroying or inhibiting bacteria, mold spores, etc., present on it. Furthermore, a "germicidal barrier" is thus formed which protects the contents of the package. The action of the surfaces, however, does not penetrate into the food materials except for the immediate vicinity of the surface in touch with the coating.

These S-Coatings which are just in the stage of being manufactured on a commercial scale as a "Sterilite" product by the Shellmar Products Co., Mount Vernon, Ohio, differ from most antiseptic, germicidal and fungicidal agents because of their complete lack of solubility, toxicity and the presence of taste and odors. Since this new material does not depend upon producing vapors or gases it is inexhaustible under most conditions.

Electric Dip Tank

The Phillips Mfg. Co., 3430 Touhy Ave., Chicago 45, Ill., presents a new and improved melting tank, for ethyl cellulose dip compounds, that maintains critical melt with a temperature variation of less than 5° F. This efficient new unit has a capacity of 15 gallons of melted ethyl cellulose or similar compounds.

Melting tank is encased in an oil bath by which heat is transmitted throughout the melt uniformly by convection. Thermostatic controls to keep the melt at exactly the temperature desired and there is a separate, screened-off section, for adding additional unmelted ethyl cellulose so that it does not enter the melt until it, too, is of the right consistency.

Capacity, 15 gallons of material.

This plastic dip tank is all-steel, arc-welded, insulated throughout and has controls completely enclosed and protected. This is a compact trouble free melting unit for present day overseas shipping and post-war use.

Acid-Resisting Masking Tape and Tubing

Peninsular Chemical Products Co., 6795 E. 9-Mile Rd., Van Dyke (Detroit), Mich., announces two new insulating products for plating plant use: Pen-Tape, an elastic, flexible masking tape for insulation of plating racks and masking of parts for selective plating; and Pen-Tube, for quick insulation of plating rack contact wires.

These materials effectively resist all plating and cleaning solutions and withstand rough handling and abrasion. They do not harden or crack under the severest service, but remain tough and flexible throughout long-continued use.

Pan-Tape, being elastic and flexible, conforms readily to irregular contours and wraps snugly around

IS THE WORD FOR ARCO PRODUCTION FINISHES

● The farmer counts implicitly on his faithful plowhorse for loyal performance of his assigned tasks. In a very similar sense, you can count on Arco Production Finishes. Each shipment matches specifications exactly, fulfilling—or even surpassing—the required performance characteristics. Specify Arco and you specify dependability.

Paints for Industry THE ARCO CO.

CLEVELAND, OHIO · LOS ANGELES, CALIF.

shoulders, etc. It can be pulled out to more than twice its original length, giving unusual economy from the standpoint of coverage, and its elasticity and frictional properties hold it securely in place. It cannot stain or adhere to the work, is readily removed after plating. and the same piece can be used again and again. Regularly furnished in ¾-in. width for general-purpose use, Pen-Tape can also be supplied in any special width desired.

Pen-Tube is made of the same material but is tubular in form and is readily slipped into place. It is regularly available in sizes from 1/16 to 1-in. inside diameter, but other sizes can be furnished.

For permanent insulation of racks for production plating, these materials are fused into a smooth integral covering by heating at 260° F. for 20 minutes. Repairs become an integral part of the covering.

Decorative Coating for Glass

"Snowflake" a new development of the O. Hommel Co., Pittsburgh, Penna., research laboratory is said by the manufacturer to increase the field of decorative possibilities on many glassware items. Snowflake gives a beautiful permanent satin finish to glass in ½ to 2 minutes. The application is very simple and requires no special equipment.

It has been used to decorate gin bottles, tumblers, vases, bowls, dials, gift packages, vials, architectural glass, window and plate glass. Snowflake is available in quart, one gallon and five gallons.

New equipment to do metal cleaning, spraying and baking of finishes, together with means of keeping products clean during processing, is being planned by progressive manufacturers who are preparing for postwar civilian production.

Hood Protects Workers From Acids

An acid hood that gives chemical workers protection against all concentrations of nitric, sulfuric, hydrochloric, acetic, hydroflouric and carbolic acids has been developed by the Chicago Eye Shield Co., 2300 Warren Blvd., Chicago 12, Ill. A clear window provides normal vision and is equally acid-resistant. When worn, the hood covers the head, shoulders, chest and back. It is snugly tied at the waist.

For the safety of chemical workers.

The new hood's comfort features include an air-feed unit as well as side vents for better air circulation. These vents are splash-proof. The built-in headgear and light but durable fiber frame supporting the window add to wearing comfort.

PAST...
PRESENT...
FUTURE...

Egyptian finishes held high pre-war position for excellence, for adaptability, for ease and economy of application.

Today, with so much of Egyptian's volume devoted to war, the same high position is maintained.

Isn't that a promise that when war's restrictions are lifted, Egyptian's position in the finish field will continue as it is...and long has been? We think so.

THE EGYPTIAN LACQUER MANUFACTURING COMPANY
ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Inquiry regarding your post-war finish needs is invited.

EGYPTIAN FINISHES

EGYPTIAN
SPECIALIZED PRODUCTION FINISHES

Booklets Catalogs Circulars

Free Book on Wood Finishing

The third edition (revised) of "The Finish of Your Lacquer Problems", a 32-page illustrated booklet on wood finishing and refinishing, is now ready for distribution by Qualatone Products Inc., 21 Gay St., New York 14, N. Y.

Silk Screen Stencil Booklet

An 8-page booklet that illustrates and describes how to use Nu-Film, in connection with the making of silk-screen stencils, is published by Nu-Film Products Co., Inc., 56 W. 22nd St., New York, N. Y.

Polishing-Room Accessories

Time-saving accessories that speed production and promote safety in polishing, buffing and de-burring are illustrated and described in the new Manderscheid Bulletin 102, which is available on request to The Manderscheid Co., 605 W. Wash. St., Chicago 6, Ill.

Quick-Action Books for Foremen, Supervisors

The National Foremen's Institute, Inc., Deep River, Conn., has prepared and published four new booklets on training fundamentals for foremen and supervisors, which use a tested technique for getting ideas across and making them work.

Foremen's shortcomings, specific ideas for stimulating and improving the quality of their supervision are made interesting and acceptable to them by means of simple texts joined to dramatic illustrations. Humorous in style and certain to capture their interest each illustration serves a serious purpose. Each booklet gives friendly, unpretentious instruction which ties in closely with the every-day work of the foreman. They offer management a sound, simple method for improving the quality of its supervision.

Each booklet is pocket size and carries 16 to 20 pages. Covers are of heavy paper cover stock in varied colors. All booklets are fully illustrated. Price of each is only 25c; minimum order $1.00 plus 10 cents postage.

Westinghouse Fluorescent Lamps

Series burning "Slimline" fluorescent lamps will be produced by the Westinghouse Lamp Division as soon as designs are completed and war conditions permit. These are in addition to the multiple types now available.

Ranging up to 8-ft. in length, "slimline" fluorescent lamps were developed primarily for coves, showcases and wallcases in stores, homes, restaurants and other places where a long, slim light source is desired. New safety bases having no exposed contacts will be provided.

Oil and Heat Resistant Synthetic Rubber

A new edition of its catalog section on the properties of Ameripol D, an oil and heat resistant synthetic rubber, which it developed for specialized applications, has just been published by The B. F. Goodrich Co., Akron, Ohio, and is now available upon request.

Properties of Ameripol D are outlined in detail. One of the features is a page table giving the property relation of natural and various types of synthetic rubber. Other tables list the properties of typical commercially available Ameripol D compounds and a guide to determine where the use of Ameripol D is practical. The section is illustrated with Ameripol D products of various types.

Melamine Booklet Free

A 24-page illustrated booklet describing the many applications of the chemical melamine, in the plastics, textile, paper, leather, chemical, paint and allied industries, has been published by the American Cyanamid Co., which was the first company to recognize the tremendous possibilities in melamine and to make it available to American industry on a commercial scale.

The booklet is designed for popular appeal and supplements the numerous

BAKING ENAMELS
LACQUERS
ENAMELS
SEALERS
PRIMERS

NEW PERIOD
WOOD and METAL
FINISHES

SYNTHETICS
VARNISHES
SHELLAC
FILLERS
STAINS
SUPPLIES

LACQUERS and SEALERS

Our complete line of Lacquers and Sealers developed by our Laboratory over a period of many years is designed to meet the most exacting requirements of modern production schedules.

The New Period line of Lacquers and Sealers include rubbing and non-rubbing, gloss and semi-gloss, clear lacquers and also pigmented lacquers.

Send us your specifications and a production sample will be shipped immediately.

NEW PERIOD PRODUCTION FINISHES

NEW YORK WOODFINISHERS SUPPLY CO., INC.
109 IMLAY STREET BROOKLYN, N. Y.
Established 1917

technical publications relating to the various applications of melamine and the chemical compounds in which it is used.

Among the more important applications of melamine are its use in plastics of high arc resistance in wet-strength paper; in the shrinkage control of wool; in making improved leather, and especially leathers which are white all the way through; in water repellents for fabrics; in improved enamels suited to mass production of automobiles and household appliances, and in the production of the chemical equivalent of distilled water.

Drawing Materials Catalog

If you have any interest in drawing materials, supplies, accessories, etc., send for a free copy of the new general catalog published by the Schrell & Brock Divn. of H. Behlen & Bro. Inc., 10 Christopher St., New York 14, N. Y. The catalog contains 176 illustrated pages, 6x9-in. which are bound between orange-colored cloth covers lettered in blue. The price list is a separate booklet of 40 pages.

Effective Plant Lighting

Illuminating critical work-areas requires primarily the use of localized lighting equipment. In a 4-page folder published and distributed by the Fostoria Pressed Steel Corp., Fostoria, O., you will find illustrations and descriptions of a few of the many Localite models which are available by assembling standard component parts of bases, arms and reflectors.

Masking Tape Withstands Plating Solutions

A new 6-page broadside on its Koroseal Tape RX and MX and Korolac RX, modern, easy-to-apply protective coatings for plating racks and masking work has been published by The B. F. Goodrich Co., Akron, Ohio, and is now available upon request.

The broadside describes the composition of Koroseal, and outlines some of the versatile forms in which it is used in the industrial field. These include tank linings, in which it handles safely all the common plating and pickling solutions, among them chromic and nitric acids.

Merits of Koroseal Tape RX and Korolac RX, Koroseal in solution, in resisting acids and alkalies in plating rack service are described, and methods of application are given. The broadside also tells the functions of the recently announced Koroseal Tape MX used for masking, in which it utilizes to the fullest extent Koroseal's ability to withstand the action of all acids used in plating. Its thin gauge permits it to stretch over and around irregular shapes and do a complete masking job where tape is needed.

New Booklet on Precision Grinding and Finishing

A new 12-page booklet entitled "Faster, Better Finishing of Metal, Plastic and Glass," describes the 3-M Wetordry method of precision grinding finish at high speed. Pages are 8½x11-in. and printed in black and yellow.

The booklet explains, in non-technical language, how this modern grinding and finishing method keeps operating heat at a minimum; eliminates distortion, discoloration and plastic flow; greatly increases the life of abrasive belts; eliminates the hazard created by dust when grinding glass, ceramics and certain metals.

An outstanding feature of this new booklet are the numerous illustrations showing actual industrial applications of the 3-M Wetordry method to problems frequently encountered in grinding and finishing departments. Copies of the booklet may be obtained, free of charge, from the Advertising Department of the Minnesota Mining & Mfg. Co., St. Paul 6, Minnesota.

New Booklet on Adhesives

A new 12-page booklet, "3-M Adhesives In Industry," which will be interesting and helpful to users of adhesives, sealers, coating or insulating compounds, impregnators and sound-deadeners, has just been announced by the Minnesota Mining & Mfg. Co., St. Paul 6, Minn.

The booklet illustrates and describes adhesive operations in many different industries, methods of application and a listing of the physical properties.

It lists various formulas and shows the viscosity, bonding range, color, weight, characteristics and uses and Government specifications. Each booklet contains an adhesive project sheet for the analysis of adhesive problems.

Diamond Chlorowax for Durable Castings

Diamond Chlorowax is a new and entirely different type of chlorinated paraffin, resinous in nature, and with flame resistant and moisture resistant properties. From all available evidence Diamond Chlorowax is non-toxic.

Chlorowax has already been accepted as a valuable ingredient of coating compounds to render them flame re-

Seeing is Believing!

• Yes—when one quick glance discloses the marked difference between PERFECTION Synthetic Flat Finish and ordinary, stearated flat finishes—"Seeing *is* Believing!"

For PERFECTION Synthetic Flat Finish reveals—*clearly, unmistakably*—the full beauty of wood grain and stain. Furniture sparkles with new-found loveliness, rich and warm—its beauty and value definitely enhanced.

PERFECTION is an easy flat finish to work with, too—sprays on smoothly, evenly, without orange peel—will force-dry or air-dry. Available in a wide range of long-lasting, water- and liquor-proof sheens.

For convincing proof that, with PERFECTION—"*Seeing is Believing*"—write for free sample.

PERFECTION
PAINT & COLOR COMPANY
Indianapolis 2, Indiana

sistant and water and moisture proof. These are applied as paints and as textile finishing compositions. Chlorowax may be used in electric cable coating compositions because it is compatible with all the film-forming materials and plasticizers which are commonly employed for this purpose.

Chlorowax is produced by reacting selected paraffin wax and pure chlorine in a carefully controlled process which insures a uniform product of high quality and maximum stability. Under ordinary conditions it shows very little chemical activity. At higher temperatures, however, Chlorowax will enter into some reactions, dissolves more readily and gives more concentrated solutions. An important physical property is its compatibility with a large number of plastics and film-forming materials.

A new technical bulletin on Chlorowax gives complete information on the product together with specific tables and data on its properties. Included are tables of physical properties, chemical properties, solubility and compatibility with plastics. A discussion on flame resistant coatings and preparation of Chlorowax emulsion are also included.

Copies of the Diamond Chlorowax bulletin may be secured by writing direct to Diamond Alkali Co., Pittsburgh 22, Penna.

Sanding and Finishing Book

To acquaint coated abrasive users with the newly announced system for identifying coated abrasives by "Carborundum". The Carborundum Co., has prepared "Sanding and Finishing", an 84-page book containing information about coated abrasives, including a complete explanation of the new system and new "End Use" names for all coated abrasive products. Also there are comprehensive recommendations for the use of coated abrasive products in metalworking, woodworking, shoe and leather, floorsanding, printing, plastics, pipe and hat trades, specifications for belt sanding, belt splices and speeds.

"Sanding and Finishing" is available to all bonafide industrial users of coated abrasives. Simply write on your business or company letterhead to The Carborundum Co., Niagara Falls, N. Y.

Flammable solvents should be kept in approved safety cans and applied where there is no danger of ignition from flames, mechanical or electric sparks, or high temperatures due to fire or friction. Smoking in the area of application should be prohibited.

Letters From I. F. Readers

(Continued from page 4)

tinuous stream of inquiries for dipping machines. Evidently there is a promising postwar opportunity for some concern to design, manufacture and sell dip-coating machines.—ED.

Furniture Finishing to be Modernized

We are manufacturers of upholstered furniture and are contemplating postwar modernization of our finishing room. We would like to get ideas and articles on the finishing of overstuffed frames, maple type furniture and bleached woods. INDUSTRIAL FINISHING is a keen magazine and we enjoy reading it.—V. C. & F. Co.

Graining Stencils or Paper

We shall greatly appreciate learning where we could obtain oak graining stencils or oak graining paper in the United States. During the prewar period, we imported these supplies from Germany, and we are now wondering if this could not be obtained in the United States.—C. & S. (Canada).

In a letter we are submitting names of concerns who, we believe, can supply what you want.—ED.

Conveyor Systems Wanted

We are contemplating the installation of a conveyor system for our finishing department. Do you have reprints of any articles run on this subject, for furniture factories, and could you supply us with names of manufacturers of such a system?—F. G. C.

Do you know of a firm that manufactures conveyor systems for dip painting? The systems illustrated on pages 62 and 80 of the June issue of INDUSTRIAL FINISHING are what we have in mind. Our work is much lighter (wooden toy parts) but the idea is there.—W. B. Co.

Information supplied.—ED.

Metal Cleaning Compounds

In INDUSTRIAL FINISHING, Vol. 15, No. 4 (Feb. 1939), there is an article entitled "Metal Cleaning Notes" by W. R. Allen. Reference is made to compounds made by a western manufacturer of alkali cleaning compounds,

Remember Pearl Essence for

A Decorative Finish

MEARLMAID Pearl Essence is being used on hundreds of different products to produce a decorative and attractive effect.

Investigate the numerous advantages of a Mearlmaid Finish before you select the final coating. Its sales appeal and merchandising value are important.

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Has High Reflective Light Value

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WORLD'S LARGEST PRODUCER OF PEARL ESSENCE

and others. Since we are interested in metal cleaning operations, we would greatly appreciate any information you can give us as to the compounds and the manufacturer.—A. C. Co.

Lacquer for Leather

We will appreciate receiving information on lacquer for leather finishes. Can you supply us with data as to whom we could contact in order to secure same? We would like a quotation as to price, delivery date and perhaps some reading material on the above.—C. AIRCRAFT Co.

Information on Finishing

At the conclusion of the war, I contemplate entering the manufacture of kitchen household steel furniture (chairs, tables, lawn furniture, etc.). I was advised that you would be in a good position to recommend some text books or booklets regarding the operation of a paint department. Also accounting forms and methods used by progressive companies with finishing departments.—Lt. (jg) B. N. M., USNR.

Back copies of INDUSTRIAL FINISHING contain more practical information on finishing than any other source we know of.—ED.

Finish for Artificial Fish Bait

I have been trying to get in touch with someone who can help me to finish an artificial bait for fishing so that the finish will not crack after use in water. Can you supply me with a method for undercoating or waterproofing for a lacquer finish? Can you quote me prices on your lacquer and thinner in small quantities? I use red cedar, white pine and cypress wood.—S. F. B.

To Start Finishing

We are about to establish our own finishing room, and we would appreciate a copy of your publication, INDUSTRIAL FINISHING.—B. Pump Co.

Tumbling Barrels

I have been informed that your organization can furnish me the information I am seeking. Briefly, I am in the market for a tumbling machine to enamel small wood toy parts, and would like to know who can sell me same. To my knowledge there is no one in Chicago who manufactures such equipment. I would prefer to buy it locally if possible. I will appreciate any information you can give me on this matter.—D. D. TOY Co.

Our reference cards show three Chicago concerns as manufacturers of tumbling barrels. In a letter we are giving you their names and addresses, along with some others elsewhere.—ED.

Silk Screen Stenciling

We are interested in the article appearing on page 88 in INDUSTRIAL FINISHING for June 1945, entitled, "Silk Screen Stenciling", by Bert Zahn. We would appreciate receiving reprints of this article and the continuation in the July issue, if any are available.—C. C. (Automotive Mfr.)

Conical Mandrel for Testing

We are eager to obtain information regarding a testing instrument called a Conical Mandrel, used in determining flexibility, toughness and adhesion of paint and synthetic enamel finishes. According to information we have been able to obtain, it was developed about seven years ago.—L. R. I.

We believe that you can obtain this type of testing device from Henry Zuhr, 187 Lafayette St., New York, N. Y.—ED.

Singapore Boat Paint

We will appreciate your advising us the manufacturer of Singapore Boat Paint. We have been unable to locate a distributor here (San Antonio, Texas) or obtain the above information.—N. L. Co.

We believe this is a product of International Paint Co., Inc., New York, N. Y.—ED.

Chemical Finishes for Mild Steel

We are interested in chemical finishes for mild steel which would present an attractive appearance without painting, and which will also withstand elevated temperatures. Through advertisements in your magazine we have written to two concerns that supply materials for such finishes. If you have on file names of other companies

ORANGE PEEL IS OK

.....on an orange

LACQUER today would be practically free from disadvantages frequently experienced when it was younger, if high-boiling solvents were freely available. In the early days of the lacquer industry, orange peel and blushing, for instance, resulted from excessive proportions of the low-boiling solvents used for economic reasons. Postwar, high-boiling solvents will again be available in quantities which will permit them to be used in liberal proportions . . . reducing orange peel and other surface imperfections—lowering finishing costs.

C.S.C. makes no lacquers or thinners but supplies solvents and plasticizers to manufacturers of protective coatings.

CSC

COMMERCIAL SOLVENTS

Corporation

17 East 42nd Street, New York 17, N. Y.

offering chemical finishes, we will sincerely appreciate you favoring us with a list of such concerns. — D. STOVE MFG. CO.

Information given.—ED.

Lacquer for Images

In your June 1945 issue, page 6, we note an inquiry written by J. C. Co., asking about cellulose acetate images. We have a lacquer that will work on cellulose acetate in humid weather without the images sticking together. We would appreciate it very much if you supplied us with the name of the account who sent in this request.—ARROW LACQUER CO.

Information supplied.—ED.

From Brussels Belgium

We noted an article appearing on page 88 of your January issue regarding a truck to handle filled drums. We are also interested in the 2-deck paint storage drum rack illustrated on page 38 in the same publication. Could you advise the name of the builders of this equipment?—G. MASEREEL, BRUSSELS, BELGIUM.

Information supplied.—ED.

Hot Lacquer Equipment

Kindly give us the names and addresses of firms offering equipment for the application of "hot" lacquers and enamels.—M. J. Co.

The leading manufacturers of spray equipment, who advertise in this magazine, can supply this equipment.—ED.

Coat Hanger Black (First Letter)

Would you furnish us with the name of a concern who can supply the paint or acid used in dipping coat hangers to make a black enamel finish? We have been informed that you can give us this information. We are getting up a project for blind workers to make coat hangers, and we are eager to secure the finishing material.—K. C. A. B.

(Second Letter)

We thank you for your letter giving us the names of some local paint manufacturers who you thought might manufacture an item suitable for covering coat hangers. The firms listed, however, are unable to furnish the desired solution. There must be some manufacturer somewhere who makes this preparation in a non-poisonous form. If you locate the name of such a firm, we would greatly appreciate your sending it to us.—K. C. A. B.

Furniture Repair Kit

One of our members has called our attention to a book entitled, "Furniture, Furniture Finishing and Patching" by A. B. Pattou and C. L. Vaughn. This book illustrates a Furniture Complaint Kit for patching, and our member is interested in knowing where such a kit may be purchased and the approximate cost.—N. R. F. A.

Information given.—ED.

Standard Varnish Works' 75th Anniversary

In the mid-summer issue of "Standard Live Topics," published by and for employees of Standard Varnish Works, Staten Island, N. Y., Chicago, Ill., and Linden, N. J., a brief history of the company is included along with interesting pictures. David Rosenberg and two of his sons started the business in a small plant in Long Island City in 1870. During its 75 years the company has grown to become a large well established and highly respected organization in the industry.

Jos. T. Sullivan Joins Mac Dermid Inc.

Mac Dermid Inc. announces the appointment of Mr. Joseph T. Sullivan as Technical Sales Representative for Northern Massachusetts, Maine, Vermont, and New Hampshire. Mr. Sullivan is a member and past President of the New Haven Branch of the American Electro-platers Society, and is also a member of the Metal Society.

Clean Bright Brass Cleaner

Cowles Detergent Co., Cleveland 3, Ohio, announces the latest development of its research department — Cowles KW—clean bright brass cleaner. This product is a high speed, efficient, free rinsing brass cleaner. It can be used in a still tank (with or without electric current) and in washing machine equipment. KW cleans bright and does not attack or tarnish the metal; it is also adaptable to cleaning die-castings.

Short cuts that save time and money become available when you apply "SCOTCH" Masking Tape to your manufacturing problems. The versatility of "SCOTCH" Masking Tape goes far beyond the limitations of its name; masking is only part of the story.

Take the job pictured above, for instance, where "SCOTCH" Tape made it possible to hold many small pieces in position for spray painting. When the paint had dried, the pieces were easily removed, coming free without any adhering residue.

As originators and largest manufacturer of unified pressure sensitive tapes for an unmatched number of years, we have worked closely with industry to find short cuts and savings that could be made with "SCOTCH" Masking Tapes. It is only logical to assume that this long experience of working with industry is invaluable in helping you solve many of your production problems.

It will not obligate you at all to call for the assistance of a "SCOTCH" Tape engineer.

"SCOTCH" Tape is used for Masking • Reinforcing • Sealing • Splicing • Protecting • Identifying • Holding • Sandblasting

3-M

MINNESOTA MINING AND MANUFACTURING CO.

"SCOTCH" is the trade-mark for the adhesive tapes made by M. M. and M. CO.

Industrial FINISHING

Distributed monthly to finishing room and paint shop foremen, production superintendents and company officials of metal-working, woodworking and miscellaneous industrial plants where production cleaning and finishing are major operations in parts and products manufacture.

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Editorial

Need More Well-Paid Real Service Men

An experienced industrial consultant who is now busy with the design and installation of complete conveyorized finishing systems, writes the following significant paragraph in one of his infrequent letters to the Editor:

"I have some very decided opinions on the merits of service men as such, versus, salesmen purporting to be service men. I firmly believe that manufacturers and users of finishing materials would be far better satisfied if there were fewer salesmen and more honest-to-goodness well paid service men."

We believe that most concerns and individuals will agree with this statement. Experienced service men who can go into a finishing department and straighten out seemingly difficult troubles that occur from time to time are always very much in demand. They will be especially needed during and after reconversion from war to civilian production, when new materials, equipment, and personnel will be found in so many finishing rooms.

To Avoid Fires, Teach Fire Prevention

★ In recent months fires have occurred within the finishing departments of several woodworking plants. Many of these fires could have been avoided if cleanliness had been practiced and if proper training had been given to old as well as new employees.

By cleanliness I mean the immediate disposal of lunch papers and newspapers, filler wipers, straining rags, and other combustible materials which need not be saved. Paint drippings under dip tanks and under storage tanks should be cleaned out and disposed

★ Guest Editorial . . . Many readers can write an excellent editorial — two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

Guardsman
A Beautiful Finish
Highly resistant to: boiling water, hot dishes, scratches, mars . . . alcoholic beverages.
GRAND RAPIDS VARNISH CORP.
GRAND RAPIDS, MICH.

Manufacturers are invited to use the facilities of the Guardsman studio and laboratories for post-war finish research and development. Write Grand Rapids Varnish Corporation, Grand Rapids, Michigan.

of daily. Approved metal waste cans should be available for service; it is better to have a few more than are needed.

At least one person should be assigned the task of seeing to it that neatness prevails throughout the product painting or finishing department. He should be given the proper equipment such as a shovel, broom, container, etc., so as to be able to function properly. Do not expect him to be the lavatory cleaner and plumber. He will have enough to do as it is.

By proper training, I mean teaching by practical demonstration, lectures and movies, at intervals of not more than three months, the proper methods of using fire-fighting equipment. It is regretable indeed to note the way everyone takes for granted that anybody knows how to use fire extinquishers. I worked in a plant where the superintendent was afraid that he wouldn't be boss if he taught the employees how to use fire-fighting equipment.

Is your plant worth functioning? Well then start preaching and teaching over and over again and again the right methods of fire prevention and fire fighting.—NORMAN ABRAMOVICE.

Why It Pays to Keep Equipment Clean

★ Our hats are off to the industrial concerns, whether large or small, who have set up rigid policies governing the cleaning and maintenance of their finishing equipment. Many valuable spray guns, pressure tanks and other types of production tools are being routed to the scrap heap every day, just because a supervisor is careless about demanding that they be cleaned properly; or, when instructing a beginner, the supervisor does not show the new worker the right way to clean his spray gun at the end of the work period, or the completion of any assigned job.

In many war plants, where a high priority is available to obtain the finest equipment in liberal quantities, an attitude often arises of, "Get out the production today, we'll clean up the gun or get a new one tomorrow". Then tomorrow that gun or other equipment may be past the cleaning stage. It must be rebuilt or repaired, using up parts that some small sub-contractor, who doesn't have a top priority, needs to rejuvenate his spray guns which have reached a ripe old age. The sub-contractor's guns however, have reached their ripe old age usually for one main reason and that is because each of his employees is required to learn the proper operation, adjustment, care and value of the equipment he uses.

Several months ago it was necessary that I take a number of men and travel some distance to the plant of another division of our corporation, to perform a very urgent service job. Because of the distance, plus the shortage of equipment in our own plant, we were advised that surplus equipment would be available for use upon our arrival. Upon reaching the scene ready for work, the superintendent conducted us to the finishing department's stock room. He pointed to a heap of equipment and assured us that everything was waiting. It was waiting all right, and what's more it continued to wait for an entire day while we rolled up our sleeves and scrubbed pressure tanks, flushed out hose, dismantled spray guns and cleaned them of dried paint; and replaced

seven factors that will make Santocel flatted finishes sell

1. HARD SURFACE
2. CLEAR, NON-HAZY SURFACE
3. RESISTANCE TO MARRING
4. FLEXIBILITY
5. DELUSTERED APPEARANCE
6. RESISTANCE TO HEAT
7. BETTER ADHERENCE

Right now Santocel*, Monsanto's unique silica aerogel flatting agent, is all going into the highest priority military uses. But after the war it will be available to makers of the highest quality finishes . . . synthetic resin varnishes, oleoresinous varnishes and lacquers.

*Reg. U. S. Pat. Off.

Meanwhile, write for technical bulletin M-73 on Santocel for flatting lacquers and M-74 on Santocel for flatting varnishes. Address: MONSANTO CHEMICAL COMPANY, Merrimac Division, Everett Station, Boston 49, Massachusetts.

MONSANTO CHEMICALS

SERVING INDUSTRY...WHICH SERVES MANKIND

parts which were bent and scored beyond use because improper tools had been used instead of the special wrenches, etc., furnished by the equipment manufacturer.

Meanwhile the service job, whose value in hours and minutes greatly exceeded the value of the equipment and labor, was penalized because somebody didn't have time to consider the man who might need the outfit tomorrow.

Remember the old adage that John Wesley preached back in the 18th century: "Cleanliness is indeed next to Godliness"? In the department where I am in charge this has proved to be the rule of rules by which trouble can be averted long before it might prove costly.

When a new or inexperienced operator is handed a spray gun for the first time, we see to it that he gets an explanation of each of its parts, its operation, the results obtained with each adjustment, and the effects resulting when the parts become dirty, clogged or damaged. He is shown how to use a scrub brush and solvent to periodically clean his spray gun, and he is instructed never to use a wire or sharp instrument to clean the air cap, as this might damage the port holes and distort the spray pattern. A comparison is made between the sprayer and his spray gun, as compared to the toolmaker and his micrometer, to convince the spray operator that in cost and precision he has just as valuable a piece of equipment.

Following each production shift, before the material has had time to dry over the spray gun nozzles, or settle out in the fluid hose, each piece of equipment is thoroughly cleaned and repaired by an operator directly under the control of the finishing room supervisor. All spray guns on minor spraying or stenciling operations in other departments are returned to the paint shop daily for cleaning and servicing.

In summing up the situation, the organization that puts out an extensive effort to teach and practice the principles of cleanliness is repaid many fold in material savings, prolongation of the equipment's useful life, and the ability to produce maximum production with a minimum of effort.—W. L.

Encourage and Pay for Workers' Suggestions

★ How many of your employees have given your plant suggestions for improved methods, time-saving and money-saving ideas? Not many? Well, Mr. Executive, it's your own fault. As alert and wise as management may be, there are many things in production, maintenance, safety and possible economies that escape its notice. This is where employee suggestions come into importance.

A man working on a job day in and day out is apt to find out more efficient methods of doing the job. The only way for management to get these ideas is by encouraging them and paying for them. By means of a suggestion box installed in the various departments, or near the time clock, you will find that all of your employees are not as dumb as you thought.

One thing is important however. Be sure to have someone who is of top authority read the suggestions and acknowledge the receipt of same with a nice letter. Above all, don't be too reluctant to pay suitable rewards.

Many a brilliant idea involving the saving of money, time and material has been stifled by some

All Competent Spray Authorities Say:— "Use the Lowest Possible Air Pressure!"

If you want to get the best results from spray-painting, follow the advice of impartial experts. To benefit from their experience choose Eclipse Low-Pressure equipment, which operates at pressures from 15 to 50% less than most equipment.

Eclipse has specialized in Low-Pressure equipment for more than 35 years. Accumulated experience is yours for the asking through the free advisory service of Eclipse Engineers. Your nearest Eclipse engineer will be glad to help you. Tell us the nature of your finishing problem and we'll have an engineer call.

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companies that make it a practice to omit that good solid fellow, the foreman, from receiving the same cash award that other employees get. For goodness sake, let us grow up and see that this man, who is almost always placed between the frying pan and the fire, gets his share of suggestion awards.

Is yours an aggressive, progressive, hustling organization? Then install the suggestion system and don't drop it.—N. ABRAMOVICE.

Where Absenteeism May Help Management

★ As soon as it's known that a helper will be absent from the finishing department, an effort should be made to spread his duties among several of the other workers. To "double up" in such a way that the responsibility for his own and another job is thrown on a single worker, can scarcely be considered efficient nor fair.

Absenteeism should be discouraged by (1) performing only the most essential tasks for the person who is away, and (2) making it a definite policy that upon his return he must aid whoever looked after his job, until everything gets back to normal again.

Sometimes the duties connected with a job may be spread out so evenly that no one is asked to do much more than usual. This points to a spot where a worker might be eliminated or transferred somewhere else in the finishing department, at least part of the time. When manpower and wage controls are entirely lifted, the finishing foreman will want to operate his department with the fewest possible helpers, so he can afford to pay them good wages as a guarantee of real employee satisfaction. The constantly changing picture of manpower in the shop, as various individuals or combinations of workers are absent, gives him the very opportunity he needs for an intelligent study of the problem.

This "doubling up" of tasks places a new man on a certain job for a day or two. Watch how he approaches his new responsibility. Is he more capable than the regular helper who may have

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fallen into inefficient work habits? Has he discovered some improvement overlooked by the absent worker? Is he by any chance better here than at his regular job? Keep your eyes open, and dig deep for the facts in every case of absenteeism. Often you'll learn enough to more than offset the annoyance of a helper being away for a while.—G. M. DODSON.

Foremen's Headaches; How to Avoid Them

★ Many of our finishing foremen, and among them some of the best, scratch their heads and work up a case of high blood pressure trying to solve riddles and puzzling situations that come up from time to time. Each time it is something new. A new headache; another sleepless cross night, with mama getting the worst of it. From the viewpoint of one who has had the opportunity of watching and working with some of the best comes a thought, a question and an answer.

First, what is the main function of a finishing room foreman? My version is that it is his job to see that merchandise in production receives the proper preparation, sanding and painting or finishing operations necessary, according to the production standards of his company. Naturally, in the performance of these duties, there is the question of lining up the work in proper sequence, putting the right people on the job, watching for any breaks in production, doing a certain amount of clerical work, and attending to many details which are necessary for him to see personally to keep things rolling.

After a period of some months or perhaps years, the foreman may have perfected a routine that works satisfactorily. Then maybe he starts to dish out his vital functions, piece meal to incapable green men and, finding excess time on his hands, he gradually gets away from the heart of his job and looks for other fields to conquer. This is the incubation period of trouble for the foreman. When he gave all his attention to running his department, things went smoothly; but just as soon as he started sitting back and neglecting his important function, the headaches started.

Many foremen have no technical training, but have ability. This ability can be increased by concentrating on their vital functions in the plant where they work. Don't try to be a paint chemist if you are not one. You can be a successful foreman, or you can be an unsuccessful Jack-of-all-trades. The future for finishing foremen is bright and shiny. With the right kind of management and judgment, plus endless reading of finishing publications, Mr. Foreman can ride high and come home happy every night to mama and the kids, and have no headaches or heartaches. —NORMAN ABRAMOVICE.

Maas & Waldstein Co. Honors Oldest Employees

Veteran employees of Maas & Waldstein Co., were honored at a party on the firm's premises, 438 Riverside Ave., Newark, on June 9. The guest of honor was John Weber, 73, of Bloomfield, N. J., who has spent 50 years with the company. He now supervises the handling of nitrocellulose, which is used in lacquer production.

G. Klinkenstein, Vice-President of the company, presented Mr. Weber with a 50-year service pin, a diamond ring, and a $500 war bond. He also awarded gold watches and 25-year service pins to five other employees.

"Built better by KELLOGG-AMERICAN" is not just a phrase—it's a *reputation.* A reputation for leadership *earned* by over 35 years of experience in air compressor research, design engineering and precision manufacture. Earned by a record of performance in the field that is outstanding.

"Built better by KELLOGG-AMERICAN" means light wafer-type valves, roller wrist pin bearings, positive, controlled, force-feed lubrication and many other KELLOGG-AMERICAN engineered extras. It means smooth, quiet operation. More cubic feet of air per kilowatt hour. Volumetric efficiency is high. Operating costs are low. Compressor life is long and trouble-free. KELLOGG-AMERICAN means *more air per dollar.*

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CHICAGO 54.

Exporting to War—A provocative warning to American business on its inconsistent foreign trade policy appeared recently in *Harper's* Magazine. Written by Bernard B. Smith and John A. Kouwenhoven, the article points out that we are headed straight for another world war if the United States persists in its present one-way plans for postwar expansion of foreign trade.

"Business leaders and government officials," say the authors, "are being driven, by their fear of the domestic crisis which will surely come if we fail to maintain something like full employment, into a scramble for overseas markets."

We are committing ourselves to expanding our export trade primarily as a means of providing domestic employment, they continue. "We cannot, of course, continue to export to other nations unless we, in turn, buy from them," is the further admonition. "But to advocate an increase in imports is politically impossible in the United States today."

This noteworthy article was reprinted, incidentally, in the July issue of *This Month* Magazine.

* * *

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the war as a material for shower curtains, rain wear and other novelties. But in the years ahead, it is destined to appear in a much wider variety of forms.

Koroseal is already being widely used to make insulation for wire and cable on shipboard and aircraft, primarily because of its great resistance to fire. But this interesting product is also waterproof, windproof, mothproof, mildew-proof, and impervious to most acids, oils and solvents. It was recently described as "one of the most versatile materials yet discovered."

Future uses will probably include gay upholstery fabrics which will be practically immune to the effects of sun and weather; a heavy, leatherlike material for automobile tops; and cloth for luggage, purses and similar products.

* * *

New Merchandising Plan — We reported in this column, several months ago, the radical marketing scheme being concocted by the Monitor Equipment Corp. This organization now announces it is ready to offer the distribution of more than 25 household appliances, including almost everything from air conditioning units to waffle irons.

Monitor is lining up 60 independent dealers throughout the country, each of whom will own exactly one-sixtieth of the stock of the corporation. All products will be sold under the Monitor brand name. "Our plan," says T. K. Quinn, president of the corporation, "solves the problem of the medium-size manufacturer who, because of his concentration upon production, is unable adequately to put his brand before the public—except at a high cost percentage of sale."

* * *

Progress in Synthetics—A striking illustration of the tremendous improvement in synthetic rubber tires was cited recently by Capt. Eddie Rickenbacker, president of the Indianapolis Motor Speedway Corp. He pointed out that Wilbur Shaw, 3-time winner of the Indianapolis classic, has gone around the speedway track at 100 miles an hour on synthetics. "They were perfectly satisfactory," declares Rickenbacker, "and withstood the strain of hard driving just as well as natural rubber."

In an exciting preview of things to come, the noted flyer forecasts that the 1946 Memorial Day race will see cars testing jet propulsion, as well as gasoline turbine engines for ground transport.

* * *

Boom in Television—The expansion of sound broadcasting, after World War I, is destined to be duplicated by the coming progress in television. That is the sober judgment of one of the men best qualified to discuss the subject—Brig. Gen. David Sarnoff, president of the Radio Corporation of Amer-

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ica, and a pioneer in the industry.

The manufacture of new television receivers will probably get under way in less than a year after the WPB gives the signal to proceed. A much shorter time will be necessary, however, to proceed with the production of home radio sets. Although the first of these will contain few radical improvements, within a year or so the use of miniature electron tubes will make it possible to build surprisingly small personal units.

General Sarnoff observes that his company alone has perfected over 200 new types of electron tubes, and many of these will have dramatic peacetime applications. For example, the celebrated "walkie-talkie" will emerge as a "citizens' radio", using the new micro-wave region of the frequency spectrum.

* * *

New Vistas for Glass — Among the bright prospects held out to the American public by the Owens-Illinois Glass Co. for postwar years is a non-returnable bottle, economical in weight and space. This was developed during the war for the use of thirsty troops overseas. According to the company, more than 600 million beer bottles alone—a third shorter and 50% lighter than prewar types—were shipped out.

Owens-Illinois has other plans of interest. A large expansion in the use of glass blocks for construction purposes is confidently predicted. These new blocks will permit a maximum of light refraction, and will be much stronger than former types.

* * *

Sewing Machine Demand — One industry which is making plans for years of capacity production is the sewing machine trade. It has been reported that a single large manufacturer estimates a record total of orders for two million new units, with the expectation that most of the old equipment will be sold without too much difficulty in the export market.

In the opinion of Milton Heimlich, vice president of the Machinery Dealers Institute, a large percentage of the sewing machines used in American industry will have to be replaced, because they are of obsolete design. Peacetime production costs will be high, he points out, and therefore only those manufacturers who own the latest type of equipment will be able to meet the prospective competition without difficulty. On the other hand, wage standards in most foreign countries are considerably

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ULTIMATUM TO TOKYO

PREMIER KANTARO SUZUKI OF JAPAN has turned down the Ultimatum of the Big Three to surrender or be destroyed. This means that Japan's defeat is as certain as anything can be. It also means that Japan's power to resist is almost completely broken.

It is generally believed that Russia pledged herself to join her Allies in the Pacific war, at the Potsdam meeting, as soon as she can move her power from West to East.

Now is the time to persevere and pile it on out there and back here. Finish this job first and then let's start the complete reconversion ball rolling in high gear.

Listed here are a few of the war products now being coated with our materials. Phone, wire or write and let one of our finishing experts help you "keep production rolling."

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lower, he adds, and thus our old machines will be quite acceptable in those markets.

* * *

Construction Delays—The critical shortage of lumber is bound to sharply retard new home construction for many months, in the opinion of Lee E. Cooper, real estate editor of the New York *Times*. In addition, he points out, hardware and many other equipment items still are in short supply.

Soon after V-E Day, several federal officials expressed the hope that upwards of 400,000 new dwelling units could be provided within a year, but the uncertain requirements of the Pacific campaign raise many questions. Cooper also reminds us that the disappearance of many former building workers into war industries may make labor crews uneven when construction begins to return to normal.

* * *

Quick Conversion—As an example of the relative ease with which resumption of civilian goods manufacture can be achieved, the Department of Commerce underscores a survey completed in the New York region. Approximately one-half of the war plants in that area have reported that they will be able to reconvert within a period of two months. Only 20% believe that four months or more may be required.

Concerning the general employment picture, the report maintains that no serious problem is anticipated in the area while the Pacific war continues. The increase in civilian production will generally provide sufficient opportunities to make up for the loss resulting from cutbacks and cancellations.

* * *

Another Wood Product—On the heels of the development of Com-

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Apply Wyandotte Spray Booth Coating *first* for quicker removal later of layers of inflammable paint. It takes only a thin coating to make cleaning easier, speedier, more economical. Write Wyandotte Chemicals Corporation, J. B. Ford Division, Wyandotte, Michigan, for full details!

Wyandotte F-100* will help cut your floor-cleaning costs. Even heavy soil disappears when this remarkable compound gets to work!

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Summer heat . . . open pores . . . increased skin moisture! That's the basis for heightened susceptibility of your workers to industrial skin irritations—presenting a need for *maximum protection*, best provided by FEND-I. This water-repelling protective cream rubs-in easily, forming a barrier to irritant substances on the skin—resists the "wash-off" effect of perspiration—is readily removed with mild soap and warm water at work's end. Write for the details, *now!*

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preg, Impreg, and Papreg, the U. S. Forest Products Laboratory now offers Staypak, a radically improved variety of compressed, or densified wood. This product, we are told, will swell in a fashion similar to untreated wood. However, when dried to its original moisture content, it returns to its compressed dimensions.

Staypak may have interesting uses as a substitute for hickory, which is extremely scarce at this time. Other tests are under way to employ the material in the making of airplane propeller blades. It is also believed that Staypak may be utilized in mallet heads, tool handles and dies.

* * *

"New" Cars Far Off—According to Alfred P. Sloan Jr., chairman of General Motors Corp., his organization will not offer a really new postwar automobile for about two years. And he adds that a $500 car is not in the cards from his point of view.

The first G.M. vehicles will embrace a modest amount of "facelifting", but most observers expect few radical changes. Later on, General Motors plans to incorporate more aluminum in its designs, along with a small amount of magnesium. The light metals will probably be used for doors, which would then be easier to open.

* * *

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SALES POSITION WANTED.

Overseas foreign trade experience with lacquers, paints and varnishes. I wish to contact reliable manufacturer interested in postwar export business. Will give all details by letter. Address IF-209, care Industrial Finishing.

SERVICE MEN WANTED.

Two men to work in Service Department. One thoroughly experienced in wood finishing, another thoroughly experienced in metal finishing. Prefer men with foreman experience. Splendid opportunities for the right men. Write or phone N. ARMEL, Nubian Industrial Division, The Glidden Company, 1856 N. LeClaire Ave., Chicago 39, Illinois —BERkshire 5100, giving age, background, experience and salary desired.

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Old reputable midwestern manufacturer of high quality Enamel and Lacquer, wood and metal furniture finishes, with an established volume, has an opening in the Jamestown, New York and surrounding territory. Applicants give full particulars of past experience, territory, age and other information. Address IF-210, care Industrial Finishing.

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Wanted, by well-known Detroit manufacturer of quality paints, varnishes, synthetic enamels and lacquers. Particularly interested in lacquer formulator, however, can use man with experience in other type finishes. Excellent opportunity. Replies held confidential. Our employees know of this ad. Address IF-211, care Industrial Finishing.

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For factory production, with promotion to foreman if qualified. Plant in Ohio. Permanent job. Write giving age and salary expected, to IF-213, care Industrial Finishing.

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National Manufacturer of Industrial Finishes has openings in Ohio, Southern California and Seattle territories for experienced salesmen familiar with industrial coatings. Give age, training and experience. Address IF-214, care Industrial Finishing.

PAINT CHEMIST WANTED

For development and research work on Synthetic Finishes. Knowledge of Lacquer formulation also desirable but not essential. College graduate preferred and must have, at least, several years' practical experience with a company manufacturing air dry and baking synthetic type finishes. A man, thirty to forty years of age, preferred. Excellent opportunity for the right man to locate with a progressive medium sized organization located in Eastern Pennsylvania. Give complete details, including experience, salary expected, etc., in letter. Address IF-212, care Industrial Finishing.

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CHEMIST — PROTECTIVE COATINGS—To facilitate substantial expansion program, successful Eastern manufacturer of standard and specialty finishes offers attractive opening for chemists, aged 30 to 40 years, and by education, experience and natural aptitude to participate with present technical staff in research and development of nitrocellulose lacquers (principally clears, blacks and whites); synthetic resin specialty coatings formulated for industrial application in wood and metal finishing industries. Broad and valuable experience in vinyl coatings for fabrics and corrosive-resisting applications is especially desirable. Long-planned promotion program also includes clear lacquers for high-temperature application and low-baked synthetics, for furniture, radio cabinets, caskets, etc.; other specialized industrial finishes for rubber, leather, paper, glass, plastics, fabric, wood and metal. Chemists confidently believing their qualifications conform to our "specifications" are especially urged to file application for this opening. Formal application obtainable by addressing card or letter to IF-207, care Industrial Finishing, Indianapolis 4, Ind. All replies completely confidential; our present staff is informed of this announcement.

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Finely cut fabric particles, many colors, many types . . . fluffy, yet filling. Excellent for sound-proofing, insulation and surface protection. Also, applied decoratively to assimilate suede leather finishes, velvet, velour and mohair upholstery effects. Full details, samples and prices upon inquiry.
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One 15-Gal. De Vilbiss Pressure Tank. Latest model. GEO. P. STEINHAUER CO., INC., 226 Factory St., Luzerne, Penna.

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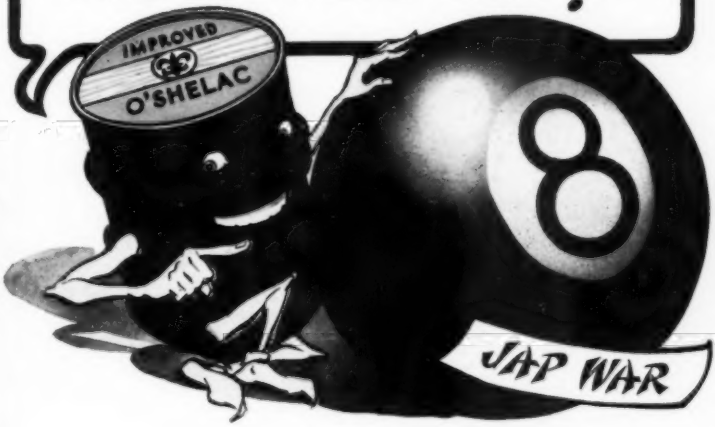

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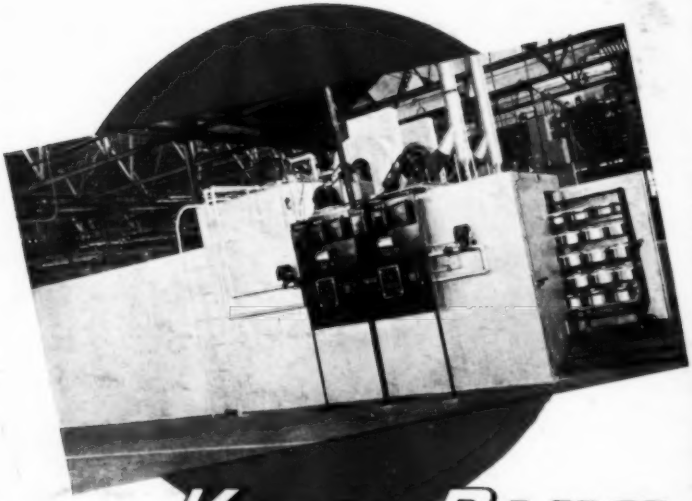

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